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DEPARTMENT OF THE INTERIOR  
UNITED STATES GEOLOGICAL SURVEY  
CHARLES D. WALCOTT, DIRECTOR

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## DEVELOPMENT OF UNDERGROUND WATERS

IN THE

# CENTRAL COASTAL PLAIN REGION OF SOUTHERN CALIFORNIA

BY

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## LETTER OF TRANSMITTAL.

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DEPARTMENT OF THE INTERIOR,  
UNITED STATES GEOLOGICAL SURVEY,  
HYDROGRAPHIC BRANCH,  
*Washington, D. C., November 3, 1904.*

SIR: I transmit herewith a report entitled "The Development of Underground Waters in the Central Coastal Plain Region of Southern California," prepared by Mr. W. C. Mendenhall, under the general direction of Mr. N. H. Darton, and recommend that it be published as a Water-Supply and Irrigation Paper.

This paper is similar to the one just published entitled "The Development of Underground Waters in the Eastern Coastal Plain Region of Southern California," and contains the results of work in the portion of the coastal plain just west of the area described in that paper. A third paper will treat of the area northwest of that here described and will complete the series of preliminary papers on the coastal plain of southern California.

The studies, a part of whose results are being made available in this way, are planned to cover all the important water-bearing lands of the valley of southern California. In most instances the facts gathered concerning the wells and the distributing systems will be supplemented by a study of the local geology, in so far as it controls the amount, distribution, and circulation of the ground waters. The hydrographic data and the geologic data will then be discussed and issued together in one report. In the coastal plain area, however, the geologic conditions being relatively simple, and the hydrographic data being large in volume and of paramount importance, it is deemed best to issue the latter at once, rather than to delay it pending the working out more fully of the comparatively unimportant geologic problems. Therefore the tables and maps are presented here for the consideration of water users, with a comparatively brief text, which is chiefly descriptive, but which includes a discussion of the effects of development and drought in bringing about those changes in water levels and in the outlines of artesian areas which have been most marked within the last five or six years.

Very respectfully,

F. H. NEWELL,  
*Chief Engineer.*

Hon. CHARLES D. WALCOTT,  
*Director United States Geological Survey.*



# DEVELOPMENT OF UNDERGROUND WATERS IN THE CENTRAL COASTAL PLAIN REGION OF SOUTHERN CALIFORNIA.

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By W. C. MENDENHALL.

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## INTRODUCTION.

This paper is similar to Water-Supply Paper No. 137, on the "Development of Underground Waters in the Eastern Coastal Plain Region of Southern California." It contains the data gathered by the Survey in the Downey and Las Bolsas quadrangles,<sup>a</sup> just west of the two quadrangles described in the earlier publication. It includes tables of the wells, with data as to their position, depth, diameter, cost of installation, and yield, and maps of the irrigated lands and distributing systems. These data give a résumé of the individual experiences of well owners in the region as well as of the general effects of the great amount of development which has taken place within the last ten years.

By the valley of southern California is meant that lowland area extending from Santa Monica to Redlands, and from the base of the San Gabriel and San Bernardino ranges southward 30 or 40 miles. It includes the coastal plain, the broad portions of the Santa Ana, San Gabriel, and Los Angeles river valleys, and the irregular groups of hills which add picturesque variety to these lowlands and separate them into distinct tillable areas. Much of this region is intensively cultivated. The foothill belt from Pasadena eastward to Ontario, the Riverside Mesa lands, and the Redlands and Highlands benches are justly famous citrus regions, where agricultural lands have high values. In the coastal plain, which is not so well adapted to citrus culture, there is greater agricultural diversity; dairying, market gardening, the raising of deciduous fruits and vegetables and of English walnuts, celery, and sugar beets being important industries.

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<sup>a</sup> A quadrangle is the unit of survey adopted by the United States Geological Survey for the topographic and geologic atlas of the United States. It is a rectangular area 15 minutes, 30 minutes, or 1 degree in extent each way, bounded by parallels and meridians, and having an area of one-sixteenth, one-quarter, or 1 square degree. The quadrangles disregard political boundaries, such as those of States, counties, and townships. To each is given the name of some well-known place or feature within its limits. A sheet is the topographic map of one of the above areas.

In all of this agricultural and horticultural activity, the first requisite is water. The entire region is semitropic and semiarid and irrigation is necessary in order to mature any except a few of the less valuable crops. As is generally the case in regions of little rain, the soils are rich because they have not been leached of their soluble fertile elements, and when water is applied to them they yield abundantly. As is fully recognized by agriculturists, constant sunshine and warmth, with the artificial application of water in the right quantities at the right times, give ideal conditions for large yields; hence the lands in arid or semiarid regions, when brought into cultivation by means of an abundant artificial water supply, are much more valuable than those in regions of greater rainfall, where irrigation is not practiced.

In southern California lands under irrigation usually bring several hundred dollars per acre, are not infrequently valued at \$1,000 per acre, and may, in exceptional cases, bring \$2,000 or even more. Since the greater part of the cultivable dry lands quickly acquire such values when water is applied to them, the story of the growth of this region becomes a story of the utilization and application of its available waters. To the practical solution of water problems, engineering and legal, much of the best talent of the country has been devoted for many years, and will be for many years to come.

The first settlers, the Mission Fathers, after them the Mexicans, and still later the Americans, secured their first holdings near the flowing streams or the "ciénaga" lands, the sites of perpetual springs. As the areas under cultivation slowly increased, the waters of the mountain canyons were gradually appropriated and applied to the adjacent lands. Then engineering devices were resorted to for increasing the flow of springs, for intercepting the underflow of streams, or for storing the flood waters by means of dams and reservoirs. Lastly, attention was turned to the underground waters, which proved to occur in large quantities and to be widely distributed, so that entire communities have sprung up which depend wholly on these sources for their irrigation water. Developments during the last ten years have been chiefly those of underground sources, and the maps and tables in this paper show their extent in a small part of the valley of southern California. (See Pls. I, II, and IV.)

#### THE COASTAL PLAIN.

The district under immediate consideration is the central portion of the coastal plain of southern California. This plain extends inland from the Pacific Ocean 15 or 20 miles to the base of the hills which represent the Coast Range, and stretches coastwise for 50 miles from Sherman to the foot of the San Joaquin Hills. It is generally level or gently sloping, is fringed on the coastward side by a belt of salt marshes and sand dunes, and has an area of 775 square miles.



THE INNER EDGE OF THE COASTAL PLAIN WEST OF WHITTIER, CAL.

On the northeast it is bounded by the Santa Ana Mountains and their extension, the Puente Hills. Near the Pacific its even surface is interrupted by a line of low hills which, in the vicinity of Huntington Beach and Los Alamitos Bay, lie close to the coast, but which to the northwest are found farther inland as the shore line swings westward about San Pedro Hill. This line of low hills of irregular height marks the seaward boundary of the coastal artesian belt. As a topographic feature it is broken by the valleys of Santa Ana, San Gabriel, and Los Angeles rivers which cross it on their way to the sea; but as a structural feature and as a barrier to the subterranean waters which percolate slowly seaward, it appears to be continuous throughout. The Downey and Las Bolsas quadrangles, which constitute the central coastal plain region, include an area that extends from the shores of the Pacific at San Pedro Bay across the coastal plain to its inner edge in the neighborhood of Whittier and the Paso de Bartolo (Pl. III). These quadrangles lie about midway of the east-west extent of the plain and include the broadest part of the artesian belt; they contain more wells than any area of equal size in southern California.

The greater part of this area is underlain by loose sediments—sand, gravels, and clays—which were brought down from the mountains by the rivers and distributed by them and by the waves and currents of the Pacific off the shore of this part of the continent. The coastal plain is believed to have been at one time a broad embayment with San Pedro Hill as an island well offshore, as Santa Catalina is now. As a result of the accumulation of the débris brought out by the streams, and perhaps also in part as a result of uplift through crustal movement, this great bay has been reclaimed from the sea, and is now a prosperous and, throughout much of its area, densely settled agricultural region.

#### SOILS AND CROPS.

The soils of the Downey and Las Bolsas quadrangles do not exhibit the great diversity found in some areas of the same size in the southern part of the State, although a number of more or less distinct varieties are recognized and mapped by the Agricultural Department.<sup>a</sup> The soils are rather uniform in texture, ranging only from the sands or fine gravels of San Gabriel Wash or of the beach dunes, to the dark adobes of the marshes and tule lands. They vary in origin from the washes brought by the streams from the distant mountains to the clays of the benches east of Whittier, which are derived from the Tertiary shales of the adjacent hills. They include the rich loams of the peat swamps, which owe their fertility in part to the vegetable

<sup>a</sup> Mesmer, Louis, Soil survey of the Los Angeles area. Field Operations Bureau of Soils, U. S. Dept. Agriculture, 1904.

mold which has accumulated through the decay of plant growths. These soils are generally productive, except in the sandy washes or dunes and in some of the lower lands where alkalis are found in excess. The latter trouble probably can be remedied by drainage in all cases, but few systematic attempts have yet been made in this direction. The more alkaline lands are generally included in the wide pastures of the larger undivided ranchos.

The crops exhibit the diversity which is characteristic of the coastal belt. On the benches about Whittier are extensive citrus orchards. In the lowlands, under the San Gabriel irrigation systems, are many flourishing walnut groves and orchards of deciduous fruits. Berry growing, gardening, alfalfa raising, dairying, and grape culture are practiced about Florence and Compton. Sugar beets and alfalfa are raised in quantities in the vicinity of Los Alamitos, and celery, potatoes, corn, and fruits are grown in the fertile and highly cultivated peat-land region south of Westminster.

Large parts of the Los Cerritos, Los Alamitos, and Los Coyotes ranchos are not under cultivation, but are reserved as pasture lands and stock ranges. As these ranchos include considerable areas of moist land, grazing is possible throughout the year over much of their acreage without irrigation.

#### WATER SUPPLY.

Both the surface and the subsurface waters of the Downey and Las Bolsas quadrangles are supplied largely by San Gabriel and Los Angeles rivers. Part of the underground waters of the southeastern portion of this area are probably contributed by the Santa Ana drainage system. These three streams, the largest in southern California, carry to the Pacific almost all of the run-off from the southern and western faces of the San Gabriel and San Bernardino ranges, which are the most effective mountain masses in this section of the State from the point of view of their capacity to induce precipitation. This is due to their height and to the fact that no high land intervenes between them and the Pacific, whence the moisture-laden winds come.

The channel of each of these streams, in its passage seaward from the mountains, crosses one or more wide valleys filled with loose sands and gravels. The waters are absorbed by this débris, and percolate slowly through it, beneath the surface, to reappear at some lower point where an obstruction to the underground passage forces them to the surface. At these points the underground waters become surface flows again, until absorbed later by another body of loose material. Thus the Santa Ana sinks in the wash above Redlands, rises to the surface above the Bunker Hill "dike," sinks below it, rises from Riverside to Bedrock Canyon below El Rincon, sinks in

the wash above Santa Ana, and finally partly rises again in the large peat-land springs about Talbert. The San Gabriel and the Los Angeles exhibit the same characteristics, but disappear and reappear less often in their much shorter courses to the sea.

This natural habit of the streams has been more or less seriously interfered with by the irrigation systems developed since the settlement of the region. At present irrigation canals head at the mouth of the mountain canyon from which each stream first debouches upon the plain, and at every place where the subterranean waters reappear the water is distributed upon the adjacent lands, where a much smaller proportion of it sinks and joins the underflow than before it was thus diverted.

The winter flood waters, which have always furnished the most important addition to the underground supply, are interfered with but little by the irrigation developments, and are still available for the annual recharge of the gravels.

#### IRRIGATION SYSTEMS.

The only important system of canals in the Downey and Las Bolsas quadrangles is the one which diverts the San Gabriel River waters that rise to the surface in the neighborhood of the Paso de Bartolo (see Pl. II). A number of ditches here, some of them among the oldest in southern California, take out the river water as it rises in springs, and distribute it over the irrigable lands in the neighborhood of Whittier, Rivera, Downey, and Norwalk.

The available measurements of flowing waters at the Paso de Bartolo are as follows:

*Discharge measurements at the Paso de Bartolo.*

	Discharge.		
	Aug. 7, 1900.	Oct. 2, 1903.	Oct. 5, 1904.
	Second-jeet.	Second-jeet.	Second-jeet.
Sheep Creek ditch.....	2.46	4.6	1.35
Rincon ditch.....	2.47	3.4	1.5
Old Temple ditch.....	1.20	-----	-----
Cate ditch.....	8.71	5.5	11.1
Standefer ditch.....	14.56	14	12.9
Banta and Los Nietos ditches.....	15.44	28	19.5
Rio Hondo under Mission bridge.....	23.18	29	22.19
Baldwin's ditch .....			2.89
Total.....	68.12	84.50	71.43

It is to be expected that October measurements will be higher than those of August, the evaporation being lighter in the fall, but the effect of the greater rainfall preceding the summer of 1903, as compared with the summer of 1904, is clearly shown in the difference between the two October measurements. None of the waters measured are developed waters, and none of them reach the pass as surface streams. All represent underflow below the mesa lands north of the pass, forced to the surface by the constricted character of the outlet and the comparative nearness of bed rock to the surface.

The following brief descriptions of some of the principal ditches which take their supply from this region and distribute it over the irrigable lands south of the pass are summarized in part from William Ham. Hall's "Irrigation in Southern California." They are brought up to date by additional information gleaned from various sources.

#### RINCON DITCH.

This ditch is nearly 6 miles long and takes its water from San Gabriel River about 2 miles below the Southern Pacific Railroad crossing. It was built by Mr. Strong in 1871. It is about 4 feet wide on the bottom, unlined except in the vicinity of the pumping plant, and carries a variable depth of water. The land which it serves lies in the Paso de Bartolo and along the upper edge of the coastal plain just west of Whittier. In 1888 about 586 acres were reported as served by the ditch, and in 1904, 800 acres. In 1902 the supply of water from the river was augmented by the installation of a pumping plant, which is now used to make up the deficiency in the river supply. In 1904 this plant was in operation for about four months, day and night, and produced during that time about 120 miner's inches. The pumping company is incorporated as the Rincon Irrigation Company, but its stockholders are the irrigators owning land served by the ditch.

#### CATE DITCH.

This ditch, built by J. W. Cate in 1867, takes its waters from the San Gabriel at about the point where the stream deserted its old channel in the flood of 1867-68. The ditch is about  $3\frac{3}{4}$  miles long, and serves an area lying in and below the Paso de Bartolo and between Rio Hondo and San Gabriel River. The amount of land irrigated by this ditch has remained nearly constant, for 1,200 acres were reported under irrigation in 1880, 1,300 acres in 1886, and 1,300 acres in 1904. Until 1900 the ditch was of earth construction and the loss of water by seepage was considerable. On April 19 of that year the water users incorporated as the Cate Ditch Water Company, with 3,600 shares at \$1 per share. Money was borrowed and improvements were at once undertaken. At present (January 1, 1905,) one-half mile at the head of the ditch

and 1 mile at the lower end of the ditch remain unimproved, over 2 miles are cemented, and 1,000 feet of wood flume have been put in. These improvements are reported to have cost about 50 cents per running foot. The water stock is appurtenant to the land and is nontransferable. The thirty-five irrigators are assessed \$1 per acre to cover running expenses and interest and to provide a sinking fund. The expenses are low, the cost of repairs on the dam and charges for cleaning, improving, and maintaining the ditch amounting to only about \$350 annually.

When water is abundant in the spring the ditch is divided into three heads; in the summer, when the amount available is less, but two heads are available, and at times of particularly low water there is only enough for one head. A "head" under these conditions is a variable quantity, but is said always to exceed 100 miner's inches. The period of rotation varies from twelve to sixteen days. Each irrigator in turn has the use of a head of water for thirty minutes per acre, except when the ditch carries but one head, when the period is reduced to fifteen minutes.

The available measurements of the flow in the Cate ditch follow:

	Miner's inches: <sup>a</sup>
August, 1900.....	435
October, 1903.....	275
October, 1904.....	555

#### STANDEFER OR RANCHITO DITCH.

This ditch was constructed in 1871 by settlers who had purchased lands on the Paso de Bartolo Rancho from Pío Pico. Its title is inherited by prescription and riparian ownership from the rancho, whose proprietors had used the water, although in a very unsystematic way, for years. The diversion from the San Gabriel is by a sand and brush dam, owned and constructed by the Standefer, Banta, and Los Nietos ditches jointly, at about the narrowest part of the pass. The main ditch is over 3 miles long and discharges into San Gabriel River below the Santa Fe Railroad. During the past two or three years the Pallett and Walnut branches and about 2,800 feet of the main ditch have been cemented. The rest is of earth construction. In 1902 the irrigators under this ditch incorporated on a basis of 10 shares per acre, or 13,000 shares in all. The expenses of cleaning and maintenance, zanjero's fees, etc., are met by charges of 10 cents per hour per head for day service and 5 cents per hour for night service. The ditch carries three or four heads of 150 to 200 inches. Charges for new construction, cementing, etc., are met by special assessments.

<sup>a</sup> The old California miner's inch is used throughout this report. It is equivalent to 9 gallons per minute, one-fiftieth second-foot, or 14.478 acre-feet per year.

**BANTA AND LOS NIETOS DITCHES.**

The Los Nietos ditch, which was built previous to 1838 by Don Pío Pico, the grantee of the Paso de Bartolo rancho, and the Banta ditch, built by P. Banta in 1867, have used the same canal for about 2 miles below their diversion works since 1884, when the original upper Los Nietos ditch was destroyed by flood. Below the section which is owned and operated jointly, the Banta ditch is about 2 miles long and serves about 800 acres southwest of Whittier and below the lands watered from the Rincon ditch. Twenty-three irrigators are served by this ditch at present (1904).

The Los Nietos ditch extends south about  $3\frac{1}{2}$  miles from the point of its diversion from the Banta ditch and serves about 1,000 acres lying just east of San Gabriel River. In 1885 its interests were incorporated on the basis of 1,500 shares, which are not transferable out of the district.

The total flow in the San Gabriel at the headworks of the Standefer, Banta, and Los Nietos ditches, which was estimated at from 1,200 to 1,500 miner's inches in 1888, is proportioned among the three ditches in the order named in the ratio of 12:9:7, the division being effected on the following basis: The total flow is divided into four parts, each ditch receiving one part and the remaining fourth being shared by the Standefer and Banta ditches, the former receiving the water five and the latter two days in each week.

The combined flow of the two ditches on August 7, 1900, as determined by S. G. Bennett, was 772 inches, and on October 2, 1903, as measured by W. B. Clapp, was 1,400 inches. October 5, 1904, Mr. Clapp reported 975 inches at the headworks.

**ARROYO DITCH.**

This ditch takes its supply from Rio Hondo, about 2 miles below the pass, and serves a large district lying east of this stream and west of the territory supplied by the Standefer ditch and its extensions.

The canal was built in 1869 and succeeded an earlier crude ditch which was really an old arroyo into which water had been diverted. The title is inherited from the riparian rights of the Rancho Santa Gertrudes, but no systematic attempt was made to use the water prior to the subdivision and sale of the rancho by Governor J. G. Downey in the late sixties.

In 1885 the irrigators organized the Arroyo Ditch and Water Company, which was incorporated with a capital stock of \$22,500. Before this time more or less indefinite attempts at organization had been made, but they were only partially successful. Indeed, about fifteen irrigators owning lands near the head of the ditch finally refused to join in the incorporation, but successfully defended their right to the

use of their proportion of the water. At this time there was much internal dissension among the various irrigators supplied by it.

The total length of the main line from the intake below the pass to the terminus,  $1\frac{1}{2}$  miles south of Downey, is about 7 miles; the Sandridge branch, which leaves the main ditch at the crossing of the Santa Fe Railroad, is about 4 miles long.

In 1888 the ditch was reported to have a minimum supply of about 1,200 inches, and to serve about 3,800 acres. The acreage supplied by it has varied but little, being about 4,000 in 1871 and in 1903. The flow of Rio Hondo at the Mission bridge, all of which is diverted below into the Arroyo ditch, is reported by W. B. Ciapp as follows:

	<i>Flow of Arroyo ditch, California.</i>	Second-feet.
August, 1900.....	.....	23.18
October, 1903.....	.....	29
October, 1904.....	.....	22.19

#### SAN ANTONIO DITCH.

This ditch is supposed to serve a few hundred acres lying west of Rio Hondo and midway between the Southern Pacific and Santa Fe railroads. It uses the upper part of the Arroyo ditch, and later delivers 135 inches of water to the Gage ditch. It is of sand and earth construction throughout, is poorly cared for, and choked with weeds, so that little or no water is actually delivered to the lands served.

The water at the head of the Arroyo ditch was originally divided equally between that ditch on the one hand and the San Antonio and the Foster, or Gage, ditches on the other, the right of the Foster to 135 inches being acknowledged.

The Arroyo Ditch Company at an early day improved the upper part of its canal and thereby effected a saving of 100 inches. As the San Antonio Ditch Company declined to share in the cost of this improvement, the water saved went to the Arroyo ditch in accordance with the terms of an agreement entered into in 1885. Recently further improvements have resulted in an additional saving, also claimed by the Arroyo Ditch Company, which has borne the expense of the improvements.

The title to this last increment, however, is not admitted by the San Antonio Company, and the matter is not as yet finally settled.

The basis of division now is this: The first 100 inches belongs without dispute to the Arroyo Ditch Company, and the first 235 inches is claimed by them. The remainder is divided equally between the San Antonio and the Gage ditches on the one hand and the Arroyo ditch on the other. Of the first part 135 inches is assigned to the Gage ditch. The part remaining after this is taken out belongs to the San Antonio ditch, but as it flows for 2 miles through the sandy bed of Rio Hondo a large part of it seeps away and is lost.

#### OTHER DISTRIBUTING SYSTEMS.

In addition to these principal ditches which have been mentioned, the Little Lake ditch, the Section Line ditch, the Agricultural ditch, and the New River ditch represent lower diversions from the San Gabriel, which receive such excess as may be left after the older rights are satisfied. Their supplies are received chiefly in the winter season.

The town of Whittier secures its domestic supply from two wells just east of San Gabriel River, on the Whittier-Los Angeles road. The water is pumped from these wells into a reservoir on a knoll above the village, whence it is distributed by gravity.

Long Beach and Los Alamitos Beach are supplied by flowing wells in the artesian basin, north of Signal Hill.

Part of the Long Beach supply reaches the town by gravity from the vicinity of Bixby station; another portion flows into a reservoir and is pumped thence into higher reservoirs on Signal Hill, whence it is distributed. This latter plan is followed by the Alamitos Beach Water Company.

Another important line not yet mentioned is that owned by the East Whittier Water Company. The water supply in this case is not secured from the water-bearing lands of the coastal plain but from the San Gabriel Valley, north of the Paso de Bartolo, near Woyden Station, on the Southern Pacific. A well-equipped air-pumping plant has been installed here and coupled with a number of wells. The water thus developed is conveyed by flume, covered ditch, and cement and steel pipe lines to the lands served in the East Whittier and La Habra districts. This system of covered and lined canals throughout is an example of a modern up-to-date distributing plant.

#### DRAINAGE DISTRICT.

In Water-Supply Paper No. 137, on the underground waters of the eastern coastal plain region, the Bolsa and the Willows drainage districts of the peat lands of Orange County have been briefly described. The greater part of the older of these two districts, the Bolsa, is on the Las Bolsas quadrangle. Its outlines are shown on Pl. II.

The earliest ditch in this district is reported by Mr. W. B. Lamb to have been dug twenty or thirty years ago by the Stearns Rancho Company. Later the county improved and extended this original ditch, and finally, in 1899, the Bolsa drainage district was organized under a State law passed two years before.

Under this law three commissioners were elected especially to make a levy upon the district for the maintenance and extension of the ditch. These commissioners levied \$15,000 for the expenses of the first ten years, but the amount will not prove sufficient, and an additional levy is expected within a year or two. The expenditures each

year are determined by a board of three directors elected to serve two years. They decide year by year the amount of the original levy that is to be expended. When this annual levy has been determined, it is collected by the county from the landowners within the districts, and the expenditures are then paid by warrants drawn upon the county treasurer.

About 15 miles of ditch are reported within the district, and the annual maintenance charges, exclusive of new construction, are given as about \$1,000. Several miles of private drain have been put in, with outlets in the main ditches. The land has thus been greatly improved, until now the district contains some of the most valuable of the famous Orange County peat lands.

#### UNDERGROUND WATER.

##### SOURCES.

The chief supply for the underground as well as for the surface waters of the Downey and Las Bolsas quadrangles comes from Los Angeles and San Gabriel rivers, both of which flow across the Downey quadrangle; another portion of it is probably furnished by Santa Ana River, whose surface channel lies entirely to the east of this area, but whose percolating subsurface waters may contribute to the underground supply in the Las Bolsas quadrangle and in the southeastern part of the Downey quadrangle. An unknown, but no doubt minor, amount is contributed by the summer underflow of these streams, and that part of the surface flow that is not lost by direct evaporation or by transpiration through the plants, in the process of irrigation for which it is all utilized, also becomes available. This proportion of return water must vary greatly with locality, soil, and manner of irrigation. On the mesa lands, whose soils are warm and dry and are often underlain by an impervious hardpan, and whose water supply is expensive and never used in excess, the proportion of return waters must necessarily be small. On the other hand, on the sandy lands between San Gabriel River and Rio Hondo, where water is applied in abundance, sometimes in excess, upon a sandy absorptive soil, the return must be large; here it is probably much more than the 30 per cent which is often assumed as the proportion of return waters. A third minor source of supply is the light surface and subsurface drainage from the adjacent slopes of the Puente Hills. This yields a relatively small amount. The winter season is the period of most effective restoration of the subterranean supply. The direct rainfall upon the coastal plain averages approximately 12 inches, almost all of which falls at that time; but the most important sources are the flood waters of the streams and the usual normal winter flow, a smaller proportion of which is utilized for irrigation when the rains reduce the necessity for the latter.

As these flood waters pass over the sandy washes they are absorbed rapidly and are thus added to the underground stores. A proportion of the greater floods often escapes absorption by reaching the sea over the surface. It is thus wholly lost.

In considering the sources of these underground waters there may be dismissed at once the suggestion that the sea water, by some great extension of the power of capillarity, is drawn inland and freed of its salt, or that a portion of the waters of Colorado River, or some equally distant stream, flows in an underground channel through the great intervening mountain barriers. These theories have no basis in fact, and are generally expressions of wishes rather than of sober belief.

#### DISTRIBUTION OF UNDERGROUND WATER.

Since the coastal plain is underlain by irregular sheets of more and less pervious material—gravels, sands, and clays—which slope gently toward the sea and increase in coarseness inland, the underground waters that percolate seaward along the coarser beds are often caught beneath a less pervious layer and accumulate pressure from the weight of the water behind them. A bed of open material may wedge out seaward between impervious strata, or may abut against an earlier ridge, or may, with the beds above and below it, be folded into an anticline, or may become gradually finer and less permeable seaward, so that the escape of its waters in that direction is cut off or rendered less easy than their entry farther inland. Under these conditions, whenever the overlying confining stratum is penetrated by a pipe or a drill, the confined waters tend to rise to the level of their source. This is the general explanation of the artesian conditions which exist here.

Since the percolating waters gravitate seaward and the finer beds, which are as essential to artesian conditions as the coarser, occur more often along the lower portion of a stream's course, it follows that the artesian areas are in the lower parts of a basin distant from canyon mouths, where only comparatively coarse detritus is deposited. All of the southern California streams are alternately surface and subterranean, the Santa Ana, San Gabriel, and Los Angeles each disappearing and reappearing several times between the mountains and the sea. The area in which the surface channels, during the summer seasons at least, are dry, is always a wide valley region; while the waters flow on the surface either in canyons, where bed rock is near the surface, or in open plains, where there is an effective, if inconspicuous, obstruction to the subsurface circulation.

Near the lower edge of practically every lowland in the valley of southern California across which a stream flows is an artesian basin, large or small, whose existence is due to conditions like those just outlined. After the waters escape from one such basin and flow

over its lower rim, the conditions are duplicated in the next basin below, and artesian waters are again found there. Thus, the waters of the Santa Ana first pass through the San Bernardino artesian belt. They escape over its lower rim, the "Bunker Hill dike" above Colton, and again sink and enter the small and unimportant Riverside basin. At Riverside Narrows they are forced out by the proximity of bed rock, flow over the surface through the lower Santa Ana Canyon, and finally enter the coastal plain artesian belt. At a point farther north than the mouth of the Santa Ana, where a wider strip separates the lower edge of the coastal plain artesian area from the Pacific, waters from this belt again occur under pressure in the small Ballona artesian area near Playa del Rey (Pl. I).

Where other conditions, such as amount of water available, are equal, those artesian basins which exist along the upper portion of a stream, though smaller, should be more efficient than the basins lower down, since near the source of the débris the water-bearing strata are usually coarser and more abundant. Such coarse strata yield their water more readily, giving wells of greater flow, and are replenished more quickly after exhaustion because they absorb flood waters with greater rapidity. At such a higher point, however, conditions are less favorable for the widespread deposition of the fine, relatively impervious clays, which are as essential as the coarser beds to the existence of artesian basins, hence the higher artesian basins are apt to be less extensive than those farther downstream, although they yield water more readily and are therefore perhaps more likely to be exhausted by reckless development.

The coastal plain artesian basin is much the largest of a number of basins which occur at various points between the sources and the mouths of the rivers of this part of southern California. It is in fact a union of the lowest basins of the three principal streams of this part of the State. Its area at present (August, 1904) is about 190 square miles. Originally it was somewhat less than 300 square miles. A large part, both of the present and of the original coastal belt, is included in the area treated in this report—the Downey and Las Bolsas quadrangles. There are now approximately 121 square miles of artesian water-bearing lands in this area, 105 square miles in the Downey quadrangle, and 16 square miles in the Las Bolsas quadrangle (Pl. IV).

There has been no decrease in the artesian area in the Las Bolsas quadrangle, because it lies along the lower edge of the artesian lands, the last portion to be affected by dry years or by excessive drafts. The artesian area in the Downey quadrangle has decreased 45 square miles, or 30 per cent from the original 150 square miles. The southwestern seaward edge of this basin is marked by a low, irregular ridge, whose highest point, Los Cerritos, 2½ miles northeast

of Long Beach, is 364 feet above sea level. Dominguez Hill, another prominent point west of the channel of Los Angeles River, has an elevation of 195 feet. Toward Huntington Beach the ridge is lower and indeed is entirely cut away for several miles by the outlets of San Gabriel River, Anaheim Creek, and Bolsas Creek, so that along the coast between Los Alamitos Beach and Huntington Beach only isolated knobs, like Landing Hill, Bolsa Chica, and Las Bolsas exist as surface expressions of the underground structure that acts as a barrier to the subterranean waters in their slow movement seaward.

Beyond the artesian area, both north and south, are broad belts in which the water is not under sufficient pressure to flow but is near enough to the surface to be readily available for pumping. Such belts include areas that were originally artesian. They extend, on the one hand, to the base of the Puente Hills or to the northern edge of the Downey quadrangle, and on the other, practically to the shores of the sea. The position of the surface of the zone of saturation throughout the areas where the ground water is important as a source of supply is shown on Pls. I and IV by means of contours drawn upon that surface as a plane. The depth to the ground-water level at any point may be determined by subtracting the altitude of the ground-water level, as shown by the hydrographic contours, from the altitude of the surface, as shown by the topographic contours.

#### DEVELOPMENT OF UNDERGROUND WATER.

In the Downey quadrangle there are more than 3,000 wells, all of which draw to a greater or less extent on the underground supplies. In the adjacent Las Bolsas quadrangle there are 300 wells. Of this total of 3,300, 175 are equipped with pumping plants operated by electricity, steam, or gasoline. These plants represent an investment of about \$150,000, and the wells upon which the pumps have been installed have cost about \$75,000; the pumped wells and their installation, therefore, represent a capital of \$225,000.

Of the 3,300 wells, about 1,635, nearly one-half, were artesian in the spring of 1904, and their estimated cost—the estimate being based on reports from about 800—was \$400,000.

There are about 700 windmill wells in the area, which, with the mills with which they are equipped, represent an outlay of approximately \$200,000. The 790 domestic wells that make up the balance of the 3,300 must bring the total capital invested in wells and equipment in the Downey and Las Bolsas quadrangles to the neighborhood of \$1,000,000. This is independent of the money invested in ditches, pipes, or other devices for the distribution of the water for irrigation.



A. TYPICAL 10-INCH WELL.



B. WELL NO. 991, DOWNEY QUADRANGLE.



The possible yield of these wells is very large. The output of the pumping plants when in service, based upon the measured or reported yield of five-sixths of their number, is 265 second-feet. The flow from 685 of the 1,635 artesian wells is over 200 second-feet, an average of about 15 miner's inches to each well. If this average is maintained by each of the 1,635 wells, the total yield approaches 500 second-feet, and the combined capacity of the pumping plants and artesian wells exceeds 750 second-feet, or 37,500 miner's inches. It is difficult to estimate how much of this yield is actually used. The pumping season varies from fifty to one hundred and twenty-five days usually. As artesian water is cheaper than pumped water it is used more freely, and many wells flow unchecked throughout the year. Others are open only during the actual irrigating season. On the whole it is considered conservative to estimate that the yield of 750 second-feet is maintained for two or three months of the twelve, equivalent to a continuous withdrawal of developed water amounting to from 125 to 200 second-feet throughout the year from the 268 square miles of the coastal plain which are included in the Downey and Las Bolsas quadrangles.

#### EFFECTS OF DEVELOPMENT OF UNDERGROUND WATERS.

This development, which began in a small way forty years ago and has continued at an accelerating rate since, the increase in the number and aggregate yield of wells having been particularly marked during the last decade, must inevitably affect the quantity of water in the underground reservoir from which the wells draw.

Before development began the outlines of the artesian basin and the ground-water level expressed a condition of balance between the supply and the natural drainage at that time. With any marked increase in supply, such as may have been brought about by a series of years of excessive rainfall, the ground-water level would rise, increasing the flow from all sources fed by it, and the artesian area would expand and pressure within it would increase, thus increasing the yield of those springs and streams whose sources were artesian waters, until this increased discharge balanced the temporarily increased supply, and a condition of stability resulted. Similarly, during a series of dry years the ground-water level fell and the artesian area contracted, until drainage declined to an equality with the decreased supply. Thus ground-water levels and artesian areas varied within certain limits previous to the change in conditions brought about by development. But with the appearance of man upon the scene, disturbing elements were introduced. The first change in natural conditions consisted of the diversion of the normal summer flow of

streams, which before the diversion sank and added their volume to the stored subsurface waters. A part of this flow, it is true, was added to the underground supply after diversion in the form of return waters from irrigation, but the amount thus added, while a variable proportion of the original, is always distinctly a minor part of it. It may be roughly estimated to run from 5 to 50 per cent of the whole. Thus the supply was sensibly diminished. Meanwhile, the boring of numerous wells in the artesian area increased the freedom of drainage. This factor at a later stage of development was rendered more important by the installation of pumping plants outside of the artesian belt. The water secured by these means, like that secured by stream diversion, was largely used for irrigation and a portion of it thus returned to augment the ground-water supply. Yet transpiration through the plants and evaporation in the ditches, and especially from the soil surface in the process of irrigation, dissipates the greater part of the water thus applied.

These two disturbing elements—the decrease of supply and the increase of drainage through development—must destroy the balance reached before they were introduced, and bring about a readjustment of the ground-water level and a rearrangement of the outlines of the artesian areas. Since they both operate in one direction, namely, to lessen the amount of ground water, the readjusted water level must stand at a lower point than the original level, and the new outlines of the artesian area must be within the original outlines.

#### PERMANENCE OF UNDERGROUND-WATER SUPPLY.

The entire coastal plain, underlain everywhere by saturated sands, gravels, and clays, has an extent of 775 square miles. Under about one-fourth of this area the waters are under pressure and are artesian. The thickness of these saturated gravels is unknown, but wells more than 1,300 feet deep near the inner edge of the plain fail to reach bed rock. It is safe to say that over much of the area their thickness must be expressed in thousands rather than in hundreds of feet. There can be no doubt that practically all of this mass is saturated, so that the total amount of water which exists there is enormous. Its sole source is the rainfall within the drainage basins tributary to the coastal plain, but the gravels themselves and the water saturating them have accumulated during long periods, and since the waters always have been supplied much more rapidly than the gravels they move slowly through as well as over these from an intake along the inner edge of the coastal plain and along the washes of the streams to an outlet at a lower point nearer the coast. The underground waters then are not in any sense lake-like; they simply

fill the voids in the gravels, sands, and clays, and move at varying rates through these voids, under the impulse of gravity and pressure from a constant if varying supply received chiefly at the inner edge of the plain. This continuous movement seaward checks any tendency of the sea water to move inland. It is indeed so completely paramount that it is probable that wells sunk into the sea floor, at short distances off the coast, would at many points yield fresh water, and probably fresh-water springs discharge into the sea at numerous localities.

While the total amount of water underlying the coastal plain then is large, only a small portion of it can be made available for purposes of irrigation. Only that part which is sufficiently near to the surface to pump at a profit, say within 250 feet, or which, although found at a greater depth, will rise under artesian pressure to or near to the surface, can be utilized. Obviously this useful surface zone is most sensitive to diversions of the supply, or to any of the forms of drainage which are included in the general term "development." No matter from what part of a reservoir the water may be drawn, the surface will be lowered; hence the fact that an enormous quantity of water is stored beneath the coastal plain has no particular bearing upon the practical aspects of the case. The amount of water within reach and the rate of its withdrawal and replenishment, not the total amount existing, are of moment to the water user. Thus in this discussion the exhaustion of the underground supplies means the lowering of the water level until the cost of pumping absorbs all the profits from the crops raised and so becomes prohibitive.

With the original ground-water level and the original outlines of the artesian basin in the Downey and Las Bolsas quadrangles, there was but little if any of the valley or mesa land which did not have water within easy reach. With the shrinkage of the artesian belt, a broad zone along the north edge of the Downey quadrangle in which water originally flowed, was thrown into the pumping zone. Water here now has to be lifted and there is a tendency to complain because of the increased cost and trouble of this method. The general effect is excellent, however, because there are few artesian wells which are not misused. This cheap form of water induces carelessness, almost invariably more water is applied than is needed, and the result is not only a loss of water but injury to the land. With the more costly pumped water, greater care is exercised in its application. It may be stated, then, that throughout the zone originally artesian, but no longer so, a marked saving has been effected in the amount of water used, even where the acreage under irrigation has not diminished.

The rate of the general lowering of the water plane throughout the central coastal plain belt and the accompanying contraction of the artesian area have of course been accelerated by the series of dry years from 1893 to 1900, and by the moderate rainfall slightly below the average since. In consideration of the fact that all of the changes in natural conditions which are due to man's use of water have tended to reduce the supply and so to disturb the balance, of which the original artesian outlines and the original ground-water level were the expression, it must be concluded that a part at least of this lowering and contraction is due to development and is permanent.

Furthermore, so long as the new developments result in adding to the amount of water produced in a given area, the decline must continue. With the decline, springs decrease in yield or cease to flow, artesian wells fall off in output, and pumping plants are used more sparingly, because the water has become more expensive, so that finally the decrease in the amount of water secured by these means reduces the output to an equality with the supply. Then a new balance is reached, and the water level no longer falls. The point at which this new balance is reached depends upon the amount of development. The greater this amount the lower the water level will fall.

The rate of this lowering, even under the influence of the great development which has taken place in the coastal plain, especially within the last decade, has been very slow, even during the dry years, and will be still slower during years of average rainfall, because the body of water drawn upon is so great and the accessions from floods and return waters so nearly balance the withdrawals. It will not continue indefinitely if development ceases now, because the drafts decrease as the water plane lowers and the artesian area shrinks, and probably in part because with the drainage of the gravels the absorptive capacity is increased, so that a smaller proportion of the occasional floods escapes over them to the sea. But the shrinkage which is now in progress and which is expected to continue intermittently for some years, being interrupted by periods of partial restoration during winters of unusual rainfall, does not affect all parts of the coastal plain alike. Always those parts of an artesian belt which lie nearest its lower edge are affected last and least by the shrinkage. Wells will continue to flow here after they have ceased elsewhere, and pressures will be maintained here after they have seriously diminished at other points. It is probable that in so large a basin as that of the coastal plain some of these most favorably located wells will never cease to flow.

The favored places for tapping the ordinary ground waters are not distributed exactly as are those for tapping waters under pressure. Ground water will always be found near the surface, just above the upper edge of an artesian area, but in addition it is not infrequently found within easy reach near the source of supply for a basin, as just below the Paso de Bartolo, while the decline is greatest in some intermediate region. If ground water remains close to the surface near the intake of a basin, while its levels are generally lower in other localities, it is because there is some obstruction below the body of ground water which holds up the percolating moisture for a time. Such an obstruction may be a bed-rock shelf, extending out from near-by bed-rock hills, or it may be only a body of fine clay or dense alluvium.

Declines will likewise be greater in the immediate vicinity of developments, unless those developments are along a line of strong underground flowage, in which case the effect of intercepting this flowage may be more marked at some point below, which is supplied by it, than in the immediate neighborhood of the intercepting wells. In the relatively fine sands and gravels of the coastal plain, however, through which the water probably percolates ordinarily at a rate of less than 25 feet per day, the effect of a battery of pumps must be to draw out the near-by water more rapidly than it is replaced by the slow inflow and thus to lower the water plane locally to a marked degree. With the cessation of pumping, this zone is filled again by infiltration from the surrounding saturated gravels, the effect being finally to spread the depression in the water plane over an area so wide that it is no longer measurable.

A continuous series of observations upon the fluctuations in the ground-water level has not been maintained at any point in the area under discussion, but at Anaheim, a few miles east, systematic records have been kept since February, 1898, by Mr. J. B. Neff. These are of great value for comparison with rainfall records, and when so compared throw much light upon the relative importance of development and drought in bringing about the decline in water levels which has been so generally observed throughout southern California during the past decade.

*Rainfall, in inches, at Anaheim, Cal.*

Year.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	Total.
1878-79.....	0.00	0.00	0.00	0.15	Tr.	0.95	1.96	0.57	0.35	0.37	Tr.	0.00	4.35
1879-80.....	.00	.00	.00	.11	1.72	3.10	1.29	1.32	1.57	2.20	0.00	.00	11.31
1880-81.....	.00	.00	.00	.28	.44	4.92	.25	.28	.85	.06	.00	.00	7.08
1881-82.....	.00	.00	.00	.81	.34	.37	.40	1.90	2.42	.48	.40	.00	7.12
1882-83.....	.00	.00	.00	.26	.78	.00	1.48	1.98	1.22	.10	2.78	.00	8.60
1883-84.....	.00	Tr.	.00	1.12	.00	1.40	2.80	10.58	6.70	1.75	.54	1.28	26.17
1884-85.....	.00	.00	.00	.15	.64	3.72	.61	.00	.00	.64	.00	.00	5.76
1885-86.....	.00	.00	.00	Tr.	2.93	1.16	4.63	.82	2.70	2.51	.00	.00	14.75
1886-87.....	.00	Tr.	.00	.00	.33	Tr.	.43	5.71	.00	2.21	Tr.	.00	8.68
1887-88.....	.00	.00	Tr.	.75	.92	2.16	6.29	.92	5.90	Tr.	.00	.00	16.94
1888-89.....	Tr.	.00	.00	Tr.	3.75	4.19	.14	1.28	7.97	.24	.57	.00	18.14
1889-90.....	.00	Tr.	.76	2.31	.30	10.95	3.36	1.54	.78	.00	Tr.	.00	20.00
1890-91.....	.00	.00	.29	.00	.19	3.36	.24	9.05	.59	1.81	.40	.00	15.93
1891-92.....	.00	.00	.00	.00	.00	1.44	.77	2.35	1.23	.15	1.48	.00	7.42
1892-93.....	.00	.00	.00	.19	.94	1.48	2.98	2.06	6.07	.23	.00	.00	13.95
1893-94.....	.00	.00	.00	.00	.30	2.38	.68	.35	.48	.13	.10	.00	4.42
1894-95.....	Tr.	Tr.	.10	.00	.00	5.69	6.92	.68	2.63	.05	.10	.00	16.07
1895-96.....	.00	.00	.00	.00	.97	.48	3.25	.00	3.03	Tr.	.00	.00	7.73
1896-97.....	.00	.00	.00	1.98	1.40	1.59	3.00	4.35	2.20	.00	.00	.00	14.52
1897-98.....	.00	.00	.10	1.60	.00	.00	1.65	.10	1.00	.20	1.00	.00	5.65
1898-99.....	.00	.00	Tr.	.00	.00	.20	2.78	.15	1.61	.20	.00	.51	5.25
1899-1900.....	.00	.00	.07	1.32	.84	1.45	1.29	.00	.73	1.09	1.49	.09	8.37
1900-1901.....	.00	.00	.00	.34	4.81	.00	3.50	3.11	.59	Tr.	2.30	.00	14.65
1901-2.....	.00	.00	.00	1.34	.50	.00	1.70	3.16	3.20	.11	.07	Tr.	10.08
1902-3.....	Tr.	.00	.00	.40	1.36	3.83	1.22	2.61	5.58	4.47	.00	.00	19.47
1903-4.....	.00	.00	.38	.06	.00	.00	.19	1.39	3.61	.82	(?)	.00	6.45

Average, twenty-six years, 11.45 inches.

The Anaheim records have been discussed in an earlier paper;<sup>a</sup> but as the conclusions to be drawn from them are of general interest, a résumé of the discussion is repeated here.

For purposes of comparison with Mr. Neff's profile, the rainfall records at Anaheim and Los Angeles have been plotted in such a way as to bring out particularly the departures from the average at each of these places. At Anaheim rainfall records covering a period of twenty-six years are available, and the average for this time has been 11.45 inches. At Los Angeles records have been kept for twenty-seven years, and the average is 15.35 inches. The San

<sup>a</sup> Water-Sup. and Irr. Paper No. 137, U. S. Geol. Survey.

Bernardino average for thirty-four years is 15.06 inches. In the charts which have been prepared these averages are selected as base lines, and the amount of rainfall in excess of the average for any

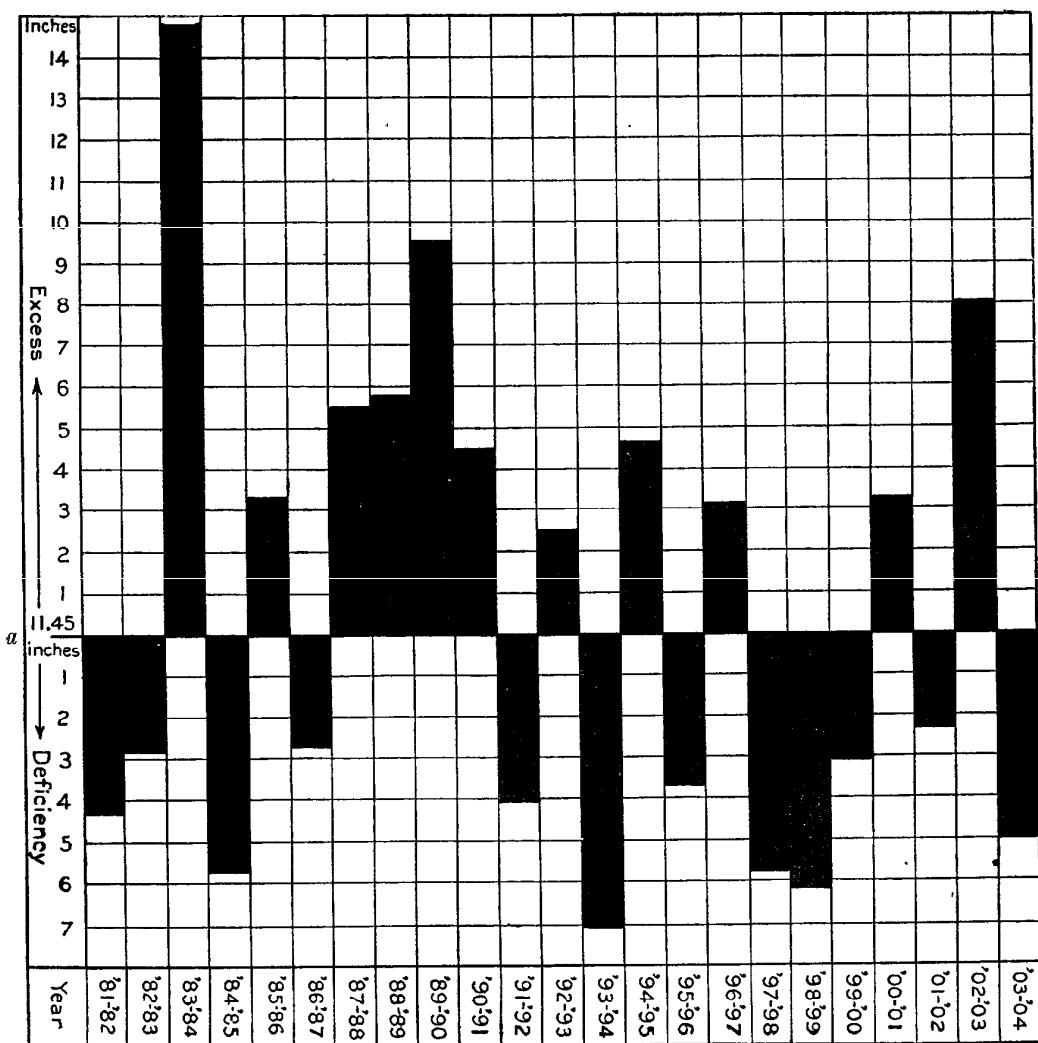


FIG. 1.—Chart showing departures from average rainfall at Anaheim, Cal. "Average for 26 years (11.45 inches).

year is plotted above this base, and the deficiency for any year below it. Thus one sees at a glance what years are years of excessive rainfall and what are years of deficiency.

*Rainfall, in inches, at San Bernardino, Cal.*

Year.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	Total.
1870-71.....	0.00	0.00	0.02	0.09	3.11	0.89	6.91	2.21	0.19	0.34	0.11	0.07	13.94
1871-72.....	.00	.04	.13	.60	.88	3.91	.00	2.20	.37	.79	.06	.00	8.98
1872-73.....	.00	.18	.04	.00	1.17	4.40	6.50	1.25	.51	.84	.21	.00	15.10
1873-74.....	.00	1.06	.02	.01	.74	5.73	5.51	8.76	1.08	.48	.42	.00	23.81
1874-75.....	.00	.00	.06	1.82	1.88	2.20	7.20	.15	.22	.07	.05	.00	13.65
1875-76.....	.00	.00	.00	.00	7.50	.02	6.55	1.92	3.41	.44	.03	.03	19.90
1876-77.....	.00	.00	.00	.20	.40	.00	3.50	4.03	.83	.26	.30	.00	9.52
1877-78.....	.00	.00	.00	.86	.50	3.95	3.33	6.68	2.57	1.71	.66	.07	20.33
1878-79.....	.07	.00	.02	.14	.05	4.70	3.59	1.00	.50	1.20	.24	.03	11.54
1879-80.....	.11	.02	.01	.94	3.40	6.50	1.56	1.33	1.45	5.00	.04	.00	20.36
1880-81.....	.00	.00	.00	.14	.67	8.80	1.40	.36	1.66	.46	.01	.00	13.50
1881-82.....	.00	.00	.00	.80	.27	.50	1.11	2.65	3.30	2.91	.00	.00	11.54
1882-83.....	.00	.00	.00	.10	.15	.45	1.60	1.10	2.82	2.95	.00	.00	9.17
1883-84.....	.19	.00	.53	.85	.09	2.63	1.63	12.20	9.95	5.68	3.17	.59	37.51
1884-85.....	.00	.00	.00	.00	.11	3.75	2.79	.11	.28	1.89	1.69	.19	10.81
1885-86.....	.00	.00	.00	.39	4.36	1.20	6.34	2.52	4.18	2.36	.32	.16	21.83
1886-87.....	.00	.00	.00	.00	.11	.61	.39	6.44	4.41	1.90	.42	.22	14.50
1887-88.....	.11	.04	.09	1.17	2.29	1.91	4.01	3.60	3.41	.58	.52	.03	17.76
1888-89.....	.00	.00	.00	.05	4.12	4.64	.93	1.50	6.55	2.05	1.13	.00	20.97
1889-90.....	.17	.63	.11	2.30	2.23	10.85	5.44	2.52	.89	.00	.31	.00	25.45
1890-91.....	.13	2.16	.88	.58	1.27	3.02	.00	7.78	.06	.53	1.67	.00	18.08
1891-92.....	.00	.91	.93	Tr.	Tr.	1.67	3.24	3.30	1.75	.37	2.10	.08	14.35
1892-93.....	.00	.00	.00	.16	1.02	2.23	4.53	3.37	8.00	.48	.03	.00	19.82
1893-94.....	.20	.00	.05	1.05	.30	2.28	1.26	.88	1.15	.40	.56	.00	8.13
1894-95.....	.00	.16	.37	.15	.00	7.25	7.39	1.14	3.44	.64	.44	.00	20.98
1895-96.....	.00	.00	.00	.00	1.14	.66	2.02	.00	2.92	.37	1.00	.00	8.11
1896-97.....	Tr.	.17	.00	2.10	.98	1.09	3.40	5.40	3.41	.08	.11	.00	16.74
1897-98.....	Tr.	.00	.13	2.10	.21	.57	2.10	.60	.97	.48	1.08	.00	8.24
1898-99.....	.00	.00	.00	.03	.05	.44	2.03	.51	3.22	.07	.19	.95	7.49
1899-1900.....	.00	Tr.	.01	.81	1.47	.84	.92	.00	.92	1.96	1.71	.00	8.64
1900-1901.....	.34	.00	.23	.36	6.10	.00	3.48	4.58	.43	.56	1.23	.05	17.36
1901-2.....	.00	.27	.07	1.09	.28	.04	1.65	3.02	3.89	.57	.12	.15	11.15
1902-3.....	.01	.00	.00	.09	1.94	1.94	1.96	1.67	6.47	3.10	.24	.00	17.42
1903-4.....	.00	.15	.46	.07	.00	.00	.18	2.21	5.34	.80	.16	.00	9.37

Average, thirty-four years, 15.06 inches.

Since the rainfall which is most efficient in supplying the surface and subsurface waters of the coastal plain is that which falls in the mountains in which Los Angeles, San Gabriel, and Santa Ana rivers rise, the Los Angeles and the San Bernardino rainfall charts are of more value for purposes of comparison with the profile of the water level than the Anaheim record, which indicates coastal conditions.

Each of these records shows that during the past eleven rainy seasons there has been a marked deficiency. For seven of the eleven this deficiency aggregates about 52 inches at Los Angeles and

about 45 inches at San Bernardino, while the other four years give excessive precipitations of 12 inches at San Bernardino and 7 inches

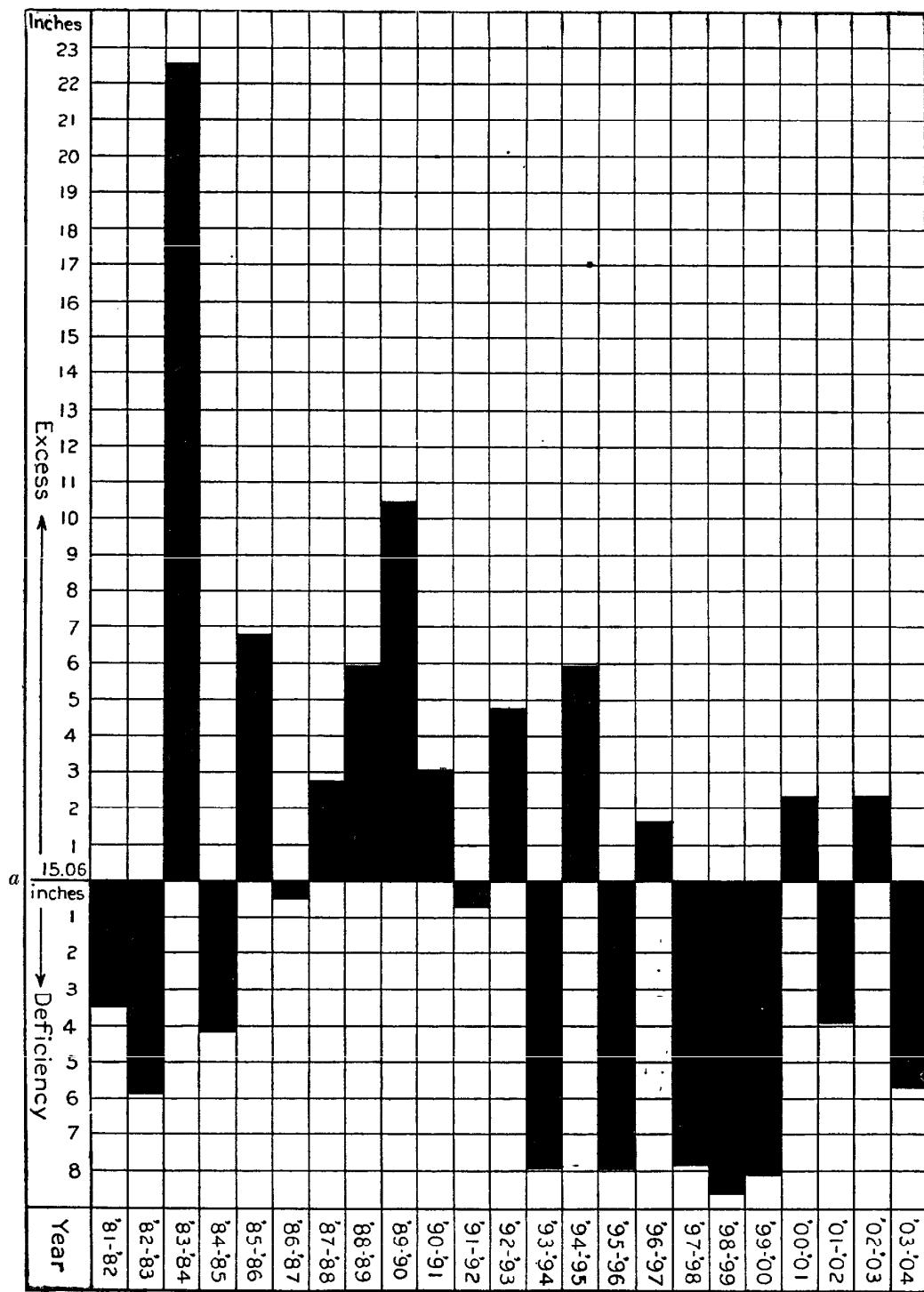


FIG. 2.—Chart showing departures from average rainfall at San Bernardino, Cal. \* Average for 34 years (15.06 inches).

at Los Angeles. The average deficiency during the period, therefore, has been about 26 per cent at Los Angeles, 20 per cent at San

Bernardino, and 11 per cent at Anaheim. So marked a falling off in rainfall is in itself sufficient to account for much shrinkage in the ground waters, hence a general decline in water levels is not surprising.

*Rainfall, in inches, at Los Angeles, Cal.*

Year.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	Total.
1877-78.....	0.00	0.00	0.00	0.86	0.45	3.93	3.33	7.68	2.57	1.71	0.66	0.07	21.26
1878-79.....	.00	Tr.	.00	.14	Tr.	4.70	3.59	.97	.49	1.19	.24	.03	11.35
1879-80.....	.00	.00	.00	.93	3.44	6.53	1.33	1.56	1.45	5.06	.04	.00	20.34
1880-81.....	Tr.	Tr.	.00	.14	.67	8.40	1.43	.36	1.66	.46	.01	.00	13.13
1881-82.....	.00	Tr.	Tr.	.82	.27	.52	1.01	2.66	2.66	1.83	.63	Tr.	10.40
1882-83.....	.00	.00	Tr.	.05	1.82	.08	1.62	3.47	2.87	.15	2.02	.03	12.11
1883-84.....	Tr.	.00	.00	1.42	.00	2.56	3.15	13.37	12.36	3.54	.34	1.39	38.13
1884-85.....	Tr.	Tr.	Tr.	.30	1.06	4.64	1.05	Tr.	.01	2.00	.06	Tr.	9.12
1885-86.....	Tr.	Tr.	Tr.	.26	5.52	1.63	7.72	1.38	2.50	3.29	.00	.01	22.31
1886-87.....	.24	.21	.00	.01	1.18	.18	.20	9.25	.24	2.30	.20	.04	14.05
1887-88.....	.07	.00	.15	.12	.78	2.67	6.03	.77	3.15	.11	.02	Tr.	13.87
1888-89.....	.03	.08	Tr.	.36	4.01	6.26	.25	.92	6.48	.27	.62	.00	19.28
1889-90.....	.00	.61	.0	6.95	1.35	15.80	7.83	1.36	.66	.22	.03	.02	34.83
1890-91.....	.0	.03	.06	.03	.13	2.32	.25	8.56	.41	.26	.31	.00	12.36
1891-92.....	Tr.	.00	.06	.00	.00	1.99	.88	3.19	3.39	.22	2.06	.06	11.85
1892-93.....	.00	.01	.00	.33	4.40	4.18	6.29	2.27	8.52	.19	.06	.03	26.28
1893-94.....	.00	.00	Tr.	.75	.20	3.65	.94	.49	.37	.13	.20	Tr.	6.73
1894-95.....	Tr.	.01	.73	.02	.00	4.62	5.84	.46	3.77	.46	.19	.01	16.11
1895-96.....	Tr.	Tr.	Tr.	.24	.80	.78	3.23	Tr.	2.97	.19	.30	Tr.	8.51
1896-97.....	.02	.01	Tr.	1.30	1.66	2.12	3.70	5.62	2.31	.02	.10	Tr.	16.86
1897-98.....	Tr.	.00	.00	2.47	.01	.05	1.26	.51	.98	.03	1.75	Tr.	7.06
1898-99.....	.07	Tr.	.02	.09	Tr.	.12	2.64	.04	1.81	.18	.04	.58	5.59
1899-1900.....	.00	.01	Tr.	1.59	.90	.90	1.17	Tr.	.99	.54	1.81	Tr.	7.91
1900-1901.....	Tr.	Tr.	Tr.	.26	6.53	Tr.	2.49	4.38	.45	.68	1.50	Tr.	16.29
1901-2.....	Tr.	.09	.03	1.88	.46	Tr.	1.62	3.35	2.98	.16	.03	Tr.	10.60
1902-3.....	Tr.	Tr.	Tr.	.40	2.08	2.50	2.10	1.52	6.93	3.77	Tr.	.02	19.32
1903-4.....	.00	Tr.	.43	Tr.	.00	Tr.	.14	2.68	4.50	.97	Tr.	Tr.	8.72

Average, twenty-seven years, 15.35 inches.

A close examination of the Anaheim profile shows that the decline was steady and uninterrupted during the three very dry years which preceded and included the winter of 1899-1900. The succeeding winter was one in which the rainfall at Anaheim, at Los Angeles, and at San Bernardino was somewhat in excess of the normal, the excess varying from 9 per cent at Los Angeles to 28 per cent at Anaheim.

During the early part of the winter of 1901 the Anaheim profile shows a sharp rise in the water level, the gain during the first three months of the year being approximately 2 feet, but by the middle of the succeeding August the water had fallen again to a lower level than it had reached at any time before this winter, whose rainfall exceeded the normal.

In short, the decline continued during a winter of excessive rainfall. Throughout the season of 1901-2 also it continued, but as this again was a winter of marked deficiency, a loss was to be expected.

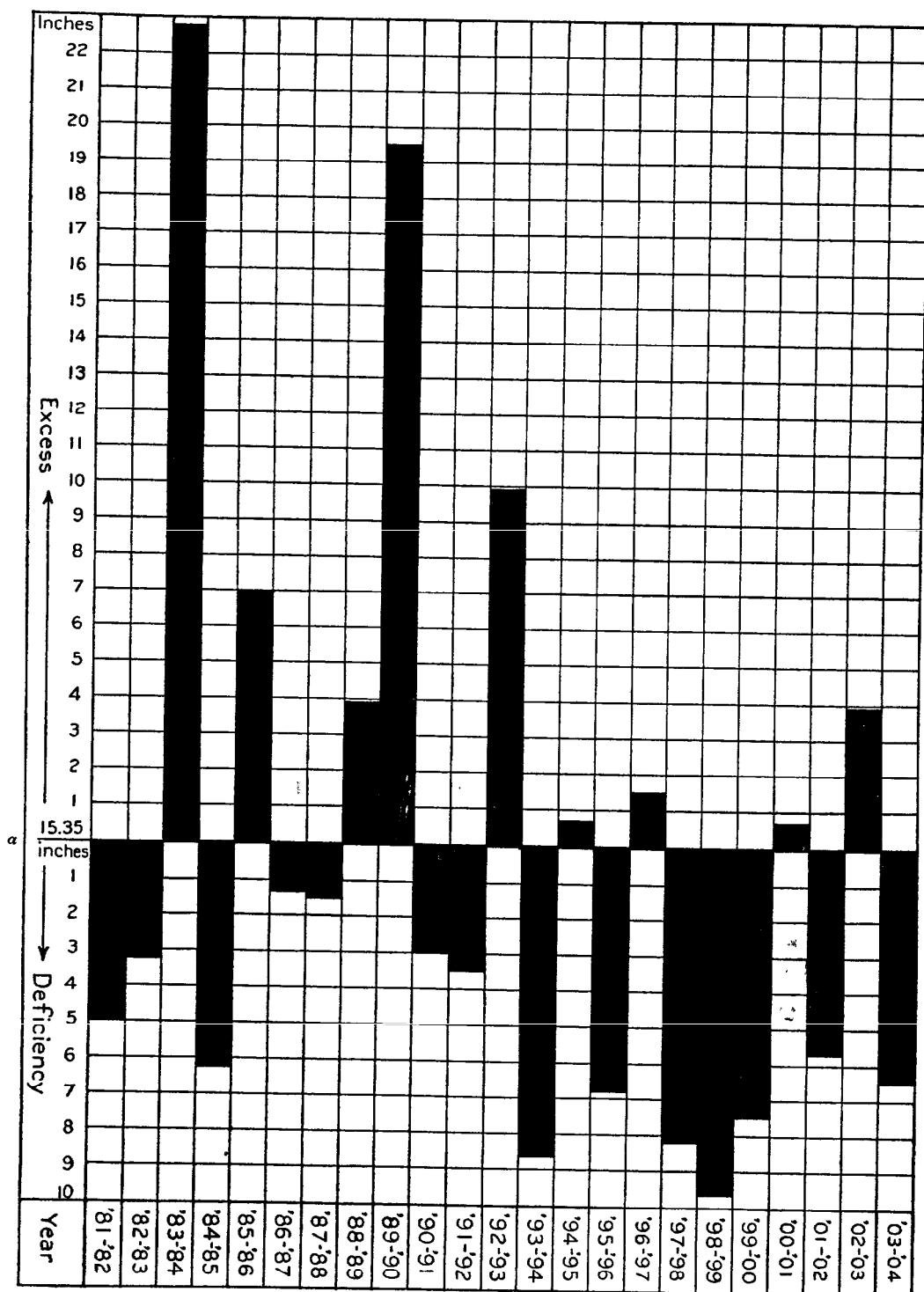


FIG. 3.—Chart showing departures from average rainfall at Los Angeles, Cal. *a*, average for 27 years (15.35 inches).

But the season of 1902-3 was again a winter of rainfall in excess. This excess amounted to about 15 per cent of the normal at San Bernardino, about 70 per cent at Anaheim, and about 22 per cent at

Los Angeles. The effect upon the Anaheim water level, while less marked than that of the heavy rainfall two years before, was more lasting, the rise of April and May, 1903, not being wholly lost until January 1, 1904. Since that time there has been no heavy rainfall and the decline has been continuous.

The important point in this comparison is the fact that the water level has continued to decline during two years of marked excess in precipitation. This fact seems to point unmistakably to excessive drafts upon the underground waters in the region to which it applies.

Direct observations of this kind have not been made in the Downey quadrangle, where there are only the general phenomena of decline

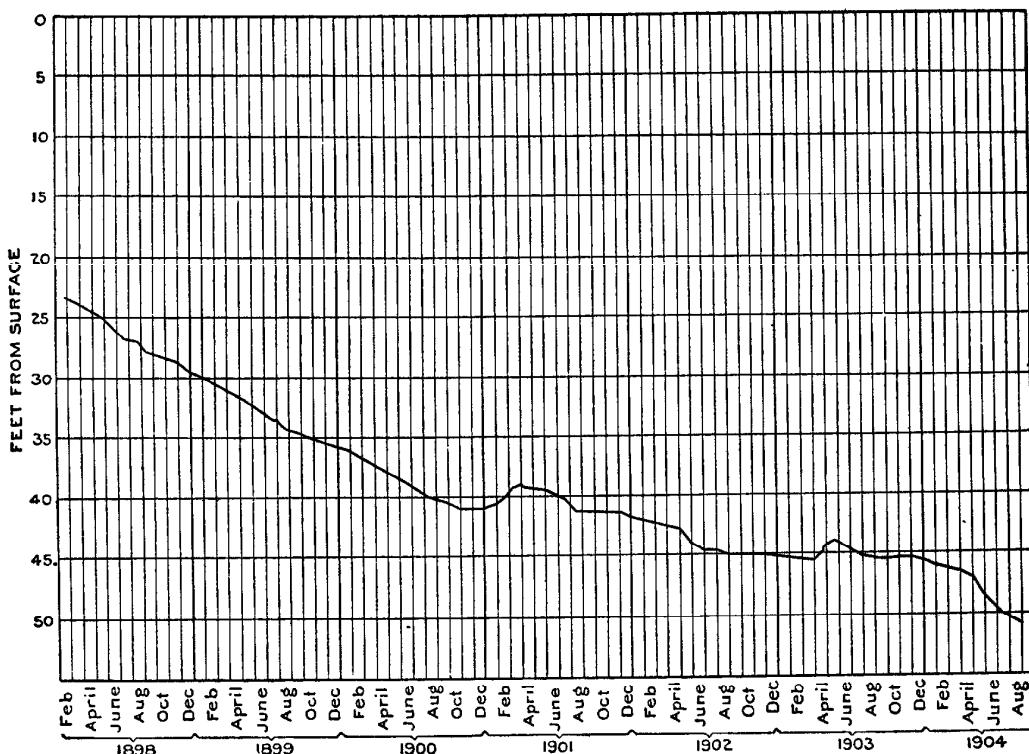


FIG. 4.—Diagram showing variation of water level near Anaheim, Cal.

from which to draw conclusions. The artesian area exhibits as marked shrinkage in the Downey as in the Anaheim region, and it is known that ground-water levels have fallen there markedly. There are more artesian wells but fewer pumping plants. Since the yield of flowing wells is very sensitive to the fluctuations in the ground-water levels and to the accompanying changes in pressure, while the output of pumped wells responds much less freely to these variations, pumping may be considered the more efficient agent in reducing the supply. So as yet the conditions at Anaheim are thought to be extreme rather than general. The unlimited extension of developments, however, may soon result in their becoming general.

### SUMMARY.

The discussion and conclusions as to the underground water supply in the central coastal plain region may be summarized thus:

(a) The supply is large, since it consists of the water saturating all of that part of the coastal plain gravels within pumping distance, say 250 feet from the surface, over an area of 600 or 700 square miles.

(b) The annual additions to the supply are large, consisting of a part of the flood waters of the San Gabriel, Los Angeles, and Santa Ana rivers, of the return waters from irrigation on the coastal plain, of the relatively small underflow of the rivers named, and of local rainfall upon this part of the coastal plain and the adjacent hills.

(c) The drafts upon these waters are large and seem certainly to be in excess of the supply in parts of the area at present.

(d) With present developments the water plane is expected to continue slowly to decline, and the artesian area to shrink until drainage is checked by these shrinkages at a point where it no longer exceeds supply. This decline should not prove serious *if present developments are not greatly increased*.

(e) So long as water developments continue at a rate which increases the output the shrinkage will continue.

(f) The lowering of the ground-water level and the shrinkage of artesian areas, even with continued development, will no doubt be interrupted by periods of rising water levels and expanding artesian areas, which will follow seasons of excessive rainfall.

(g) The shrinkage of the artesian belt will be most manifest along its northern edge. The effect farther south will be rather a decrease of flow and a lessening of pressure.

(h) Shallow artesian wells will generally be affected earlier and to a more marked extent than deeper ones.

### DESCRIPTION OF MAPS AND TABLES.

The maps in this paper show the lands irrigated in 1903-4, the irrigation canals, all of which head in or near the Paso de Bartolo, the present and the original artesian basins, and the location of wells, artesian, pumped, or domestic, in the Downey and Las Bolsas quadrangles (Pls. I, II, and IV).

The irrigated lands and those not irrigated are less clearly differentiated in the naturally more or less moist lands of the lower parts of the coastal plain than on the dry mesa and bench lands, and irrigation practice is often vague and unsystematic there. In many cases winter irrigation is practiced, the waters of the San Gabriel reaching the lower stretches of the river channel or the lower ditches only at this season, when water is abundant. It is then used to augment the rainfall on pasture lands. Irrigation of this type is

included in our classification of irrigated lands. The total area under irrigation in the Downey and Las Bolsas quadrangles is nearly 45,000 acres, or about 25 per cent of the total area.

The map of the artesian basin, past and present (Pl. I), is self-explanatory. It is to be said, however, that the boundaries differ for wells of differing depth, since deep wells may flow when they are some distance farther north than shallower wells that have ceased to flow.

As the limits have been drawn on the maps they include within the artesian area all wells flowing at the time the data were collected in the summer of 1903 and the succeeding winter. After a very wet year the northern boundary of the present artesian area may shift to the north; with average rainfall and continued development it will probably shift to the south. The southern limit should show but little change.

Outside of the artesian basin the ground-water level has been shown by hydrographic contours (Pl. I). These are lines showing the elevation of the surface of the plane of saturation. The depth to ground water at any point is determined by finding the difference between the elevations indicated by the topographic contours and those indicated by the hydrographic contours. The line of hills which forms the southern limit of the artesian basin follows a zone in which the water levels are so irregular that it was not practicable to extend the hydrographic contours across it.

Three kinds of symbols are used to indicate wells that flow, wells at which pumping plants have been installed, and the small windmill and domestic wells. Thus the map shows approximately the artesian belt and the areas of greatest development by pumping. Both artesian wells and pumping plants are constantly increasing, and by the time this report is ready for distribution many more will exist than are shown on the map, although this list was nearly complete for artesian wells and pumping plants at the time the field work was finished, in the spring of 1904. Many of the small domestic wells have not been examined and do not appear in the lists. Each well visited has been located on the map and numbered there. The information collected concerning it appears in the tables opposite this number. The information includes the name of the owner, the rancho, or, if on public land surveys, the town, range, and section, the date of completion, the size and depth of the well, the depth of water and the elevation of its surface, the approximate amount of dissolved solids in parts per 100,000, the method used in raising the water, the approximate cost of the well and of the machinery installed, and the amount of water secured. The greater part of this information was obtained from the owner of the well, data as to cost being in all cases supplied by him. The

depths of shallower wells that were accessible were measured. If the well is more than 300 feet deep, or was capped or otherwise closed, the owner's statement was taken or the driller's record consulted.

In a great many cases it was necessary also to accept the owner's statement as to the output of his well. This was particularly true of the pumping plants. Artesian wells could much more often be measured, and in every case where it was possible determinations of output were made, whether the water was artesian or pumped. Owners' statements are usually excessive.

The purity of the water was rapidly and approximately determined in the field with an electrolytic bridge, the method being based upon the fact that a definite relation exists between the amount of dissolved solids in the waters and the electrical resistance. The degree of accuracy attained in this work is probably somewhat less for the Downey quadrangle than for the Las Bolsas quadrangle, which was examined at a cooler season, as high temperatures affect the accuracy of the method. It is hoped, however, that the tests are correct within five or six parts per 100,000 in nearly all cases and that their usual accuracy is much closer than this. The results are tabulated with the other data about the wells and have also been assembled on a map (fig. 5) on which the underground waters have been classified upon the basis of their alkalinity, and on which the distribution of the broader zones is shown. Such a map furnishes general evidence as to the course of the underground circulation, and in this case indicates that the waters which come out through the Paso de Bartolo spread into a broad stream, unite with those of the Los Angeles and Santa Ana systems, and seek an outlet to the ocean in the region between Los Alamito Beach and Newport Beach. The preparation of this map showed that shallow wells, even in the areas of generally pure water, often contain very notable amounts of alkalies and that the deeper wells generally carry a smaller proportion of salts than the shallower ones. The zones, as they have been mapped, represent the general condition of waters drawn from sufficient depth to be free from surface contamination. They illustrate well the effect of the run-off from the shale hills upon the waters in the adjacent lowlands, and show also the greater purity of the ground waters in the zones of freest underground circulation, as between the passes by which the greater streams reach the coastal plain and the seashore. They illustrate, too, the somewhat inferior quality of those ground waters which lie upon the seaward side of the ridge which limits the artesian basin on the southwest. These waters, it is to be said, are irregular in their alkalinity, near-by wells often exhibiting considerable differences in the quantity of dissolved salts. Within the lower parts of the

artesian basin, on the contrary, the waters are very uniform in quality and contain but little mineral matter.

The waters of several of the deep wells of the Downey quadrangle are more or less impregnated with sulphureted hydrogen, and some of them are stained brown, probably by vegetable matter, peaty in character, which has been buried as the sands and gravels have accumulated. The subterranean waters in contact with these peaty beds are colored just as surface waters in contact with vegetable matter in swamps or marshes become stained. These gaseous

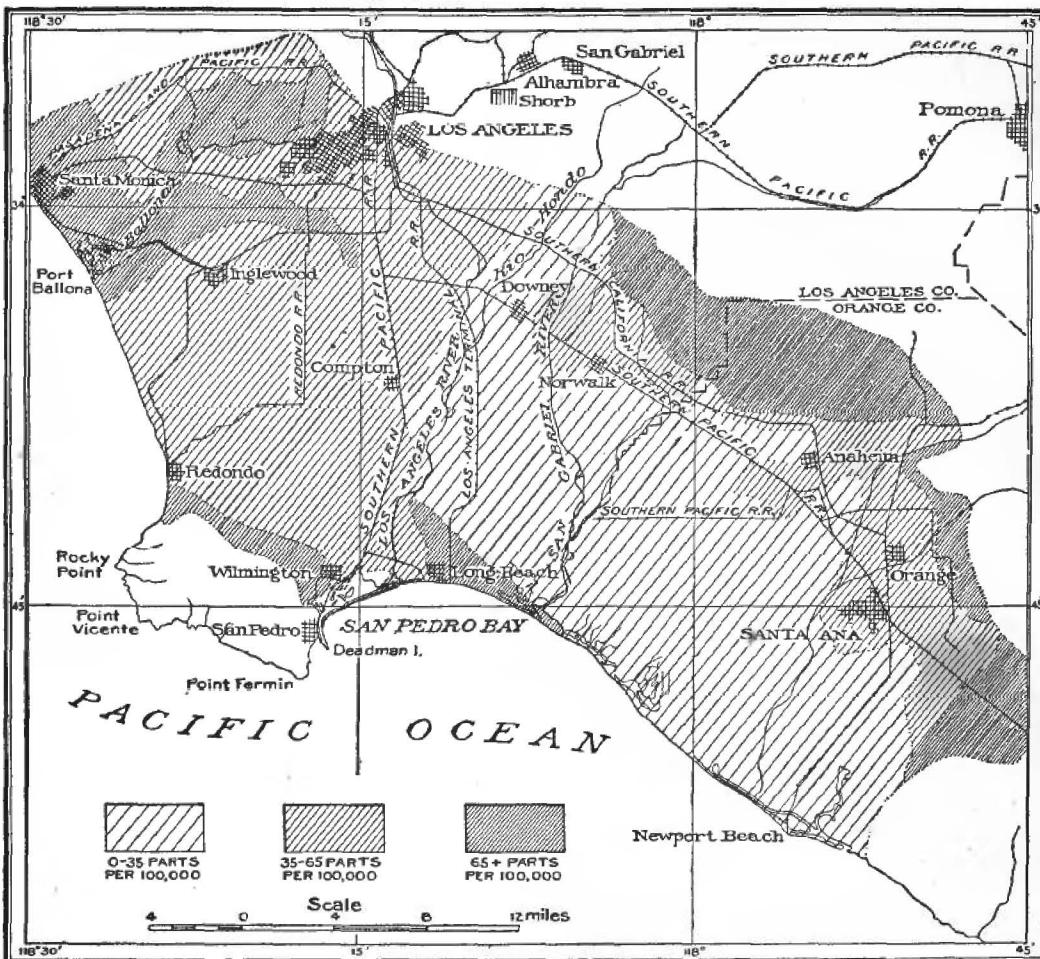


FIG. 5.—Map showing approximate amounts of dissolved solids in underground waters of coastal plain region of southern California.

and organic elements affect the electrical resistance but little, if at all, and therefore do not appear in the tabulated and mapped results.

#### ACKNOWLEDGMENTS.

Much the greater part of the work of collecting the information in the field concerning wells and water levels on the Downey quadrangle was done by Messrs. A. C. Hansen and E. R. Furstenfeld, who also mapped the irrigated lands. Mr. W. N. White is chiefly responsible for the field work in the Las Bolsas quadrangle. The

task of tabulating the results of the field work and preparing maps and tables for publication has fallen principally upon Messrs. A. J. Fisk, jr., and W. N. White.

Acknowledgments are due also to the well owners and water companies who have responded to queries and have thereby enabled the data to be procured.

The work which has resulted in the collection of this material was originally planned and inaugurated by Messrs. J. B. Lippincott and Homer Hamlin, engineers of the Reclamation Service. The credit for its initiation is theirs exclusively, and except that the increasing pressure of the important work of the Reclamation Service has come to claim more and more of their energies this work would probably have been carried out to completion under their direction.

## WELL DATA.

*Wells in the Downey quadrangle.*

[\* Cost of well and equipment combined; † yield estimated or statement of owner taken; ? doubtful. The miner's inch used in these tables is the old California miner's inch, i. e., the amount of water which flows from a 1-inch orifice under a 4-inch head; it is equal to 9 gallons per minute, 14,478 acre-feet per year or one-fiftieth second-foot.]

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Depth of well.	Solids per 100,000.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.	Miner's inches.
1 J. H. Dutcher.....	San Antonio.....	A-1.....	1903	Bored, 10-inch.....	173	135	115	59	\$175.00	Irrigation.....			
2 J. A. Gar.....	do.....	A-2.....	1895	Bored, 7-inch.....	169	133	69	70.00	\$175.00	Domestic.....			
3 F. Ahrens.....	do.....	A-2.....	1898	Bored, 10-inch.....	176	132?	100	61	140.00	Irrigation.....	60		
4 Z. S. Spaulding.....	do.....	A-2.....	1898	do.....	174	144?	100	... Propeller pump.	150.00	do.....			
5 A. B. Merrill.....	do.....	A-2.....	1889	Bored, 7-inch.....	174	133	55	Wind.....	65.00	Domestic, irrigation.	1½		
6 C. Dutcher.....	do.....	A-2.....	1897	do.....	167	129?	100	... Electric motor..	115.00	Irrigation.....	100		
7 J. H. Dutcher.....	do.....	A-2.....	1895	Bored, 8-inch.....	162	133	104	65	175.00	1,200.00			
8 Chas. Gillon.....	do.....	A-1.....	1900	Bored, 10-inch.....	175	135	87	... Electricity.....	300.00	1,200.00	do.....		80
9 Mrs. M. J. Russell.....	do.....	A-2.....	1883	Bored, 7-inch.....	156	131	87	Hand.....	300.00	1,500.00	do.....		335
10 Geo. Logic.....	do.....	A-3.....	1900	Bored, 3½-inch.....	150	128	93	do.....	90.00	20.00	Domestic.....		
11 Mrs. Sarah Braby.....	do.....	A-3.....	1883	Bored, 7-inch.....	148	128	93	Wind.....	85.00	15.00	do.....		
12 Julius Conrad.....	do.....	A-3.....	1896	Bored, 10-inch.....	146	129	480	Gas.....	600.00	1,000.00	Irrigation; domestic.		
13 do.....	do.....	A-3.....	1896	Bored, 8-inch.....	146	129	140	56	125.00	do.....			
14 Annetie Thaxter.....	do.....	A-3.....	1876	do.....	142	128	111	54	150.00	175.00	Domestic.....		
15 Geo. Nadeau.....	do.....	A-3.....	1883	Bored, 7-inch.....	144	124	180?	63	180.00	135.00	do.....		
17 D. W. Moore.....	do.....	A-2.....	1902	do.....	155	128?	115	61	118.75	90.00	do.....		
18 Quong Lung.....	Los Angeles city .....	A-1.....	1897	Bored, 6-inch.....	185	138	54	do.....	65.00	200.00	do.....		
19 J. Inverarity.....	do.....	A-1.....	1900	Bored, 7-inch.....	137	60	52	do.....	65.00	200.00	do.....		

20	A. Rueff	do	do	89	137	54	62	do	do	do	Irrigation.	120
21	I. Gibbs	do	do	1898	Bored, 12-inch.	193	138	90	57	Gas.	2,200.00	1
22	James Haddock	do	do	1891	Bored, 7-inch.	193	139	60	do	Wind.	200.00	Domestic.
23	Mrs. P. B. Hardenberg	do	do	1899?	do	195	140	65	52	do	do	do
24	Pacific Electric Ry. Co.	do	do	1899	do	194	138	70	do	do	do	do
25	Ida McClure	do	do	1882	do	192	137	61	46	do	do	do
26	Chas. Hull	do	do	1881	do	191	122	77	48	do	do	do
27	W. A. Ross	do	do	1902	Bored, 10-inch.	183	135	68	38	do	do	do
28	Burbank & Baker	do	do	1902	Bored, 10-inch.	180	135	91	45	Gas.	56.00	152.00
29	Estavan Herrera	do	do	A-2	Bored, 7-inch.	179	134	75	43	Wind.	do	Irrigation; domestic.
30	John B. Morrison	do	do	A-2	Bored, 10-inch.	176	144?	97	do	Gas.	140.00	1,375.00
31	I. H. Bryson	do	do	A-2	do	171	133	92	30	Electricity	200.00	1,050.00
32	Wm. R. Roney	do	do	A-2	do	164	128	415	49	do	1,500.00	1,500.00
33	T. E. Cleland	do	do	1897	do	156	126?	260	42	do	500.00	1,200.00
34	R. A. Innes	do	do	A-2	Bored, 7-inch.	159	129	75	42	Wind.	86.00	170.00
35	Michael Cudahy	do	do	B-2	Bored, 12-inch.	156	122	400?	do	Compressed air.	1,000.00	2,000.00
36	do	do	do	B-2	do	155	121	400	34	do	1,000.00	2,000.00
37	L. Wright	do	do	A, B-2	do	169	133	85	51	Wind.	164.00	Domestic.
38	E. V. Baker	do	do	B-1	Bored, 10-inch.	181	135	277	39	do	do	do
39	Dan Cunningham	do	do	B-2	Bored, 12-inch.	170	134	400	45	do	456.00	Not used.
40	Chas. Miles	do	do	B-2	Bored, 7-inch.	169?	132	85	42	Wind.	1,000.00	Irrigation.
41	Gail Borden	do	do	C-2	do	153	126	91	40	do	do	Domestic.
42	do	do	do	B-2	Bored, 10-inch.	158	128	121	37	do	do	Irrigation.
43	J. G. Bell	do	do	C-2	Bored, 12-inch,	158	133?	636	41	Propeller pump	do	Domestic; irrigation.
44	E. G. Greening	do	do	C-½	Dug, 3 by 3 foot.	164	173	49	Hand	do	10.00	6.00
45	W. N. Angel	do	do	C-1	Bored, 7-inch.	177	142	112	44	Wind.	125.00	100.00
46	James Gillespie	do	do	B-1	do	177	137	128	43	do	150.00	50.00
47	G. W. Brookins	do	do	C-1	Bored, 10-inch.	179	148?	135	do	Propeller pump.	200.00	Irrigation.
48	Fruitland Water Co.	do	do	B-1	Bored, 12-inch.	177	126	250	do	Compressed air.	1,000.00	1,700.00
49	John H. Van Nest	do	do	C-1	Bored, 7-inch.	182	133	285	35	Wind.	100.00	Domestic.
50	Steven Musant	do	do	C-1	do	183	106	106	55	do	110.00	100.00

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.		Method of lift.	Cost of machinery.	Use of water.	Quantity of water. Miner's inches.
					Elevation of surface.	Solids per 100,000.				
51	J. S. Quinn	San Antonio	C-1	1901	Bored, 9-inch	180	100	39	Wind.	\$300.00
52	A. E. Bell	San Pedro	D-2	1898	Bored, 10-inch	148	136	39	Electricity	1,500.00
53	F. F. Culver	do	B-8	1873?	Bored, 6-inch	73	73	do	Artesian	400.00
54	Frank Walton	do	A, B-8	1902	Bored, 10-inch	73	73	32	do	700.00
55	A. C. Bird	do	A-8	1885	Bored, 7-inch	82	82	33	Wind, artesian.	150.00
56	Mrs. Minnie Stuart	do	A-8	1891	do	84	81	160	Gas.	400.00
57	Mrs. H. C. Montague	do	A-8	1894	do	81	81	192	Artesian	500.00
58	Chas. Marble	do	A-8	1898	do	89	89	300	Gas.	600.00
59	C. A. Conklin	do	A-7	1896	do	88	88	200	do	400.00
60	Mrs. A. C. Brown	do	A-8	1902	Dug, 3½ by 3½ foot.	89	70	20	Hand	20.00
61	J. E. Paradis	do	A-8	1881?	Bored, 7-inch	94	81	198	Gas.	300.00
62	W. D. Suly	do	A-7	1892	Bored, 6-inch?	90	82	200	Wind	150.00
63	F. M. Elliott	San Antonio	A-7	1895?	Bored, 7-inch	84	84	33	Gas, artesian.	300.00
64	Francis E. Barron	San Pedro	A-7	1898	do	79	79	260	Artesian	400.00
65	H. P. Schildwachter	San Antonio	A-7	1883	do	82	82	140	Wind, artesian	145.00
66	F. L. Walton	do	A-7	1895	Hydraulic, 2-inch.	84	84	223	do	100.00
67	do	do	A-6, 7	1895	do	87	87	228	do	180.00
68	J. E. Lodge	do	A-6	1897	Bored, 7-inch	88	88	200	Gas, artesian	350.00
69	E. S. Gunby	do	A-6	1888	do	91	91	240	do	500.00
70	I. E. Herson	do	A-6	1900	do	91	91	250	do	350.00
71	Geo. Wittman	do	A-5	do	do	96	91	43	Artesian	700.00
72	G. H. Bollinger	do	A-5, 6	1883	do	98	98	240	do	600.00

+1

## WELLS IN DOWNEY QUADRANGLE.

73	J. G. Bellou	do	A-5	1889	...do	100	100	70	55	...do	100.00	...Domestic; irriga-	...
74	Miss Hersey	do	A-5	1891	Bored, 10-inch	102	102	80	56	...do	77.00	Irrigation...	1
75	Z. A. Towne	do	A-4, 5...	1897	Bored, 7-inch	112	112	77	56	...do	77.00	Domestic; irriga-	15
76	Mrs. L. Diller	do	A-5	1882	...do	112	112	87	61	...do	90.00	Domestic...	Small.
77	Mrs. F. E. Rausaur	do	A-4	1881	Bored, 10-inch	117	117	72	51	Wind, artesian	100.00	200.00	...
78	David Elcoat	do	A-4	1896	Bored, 7-inch	123	123	87	55	...do	100.00	50.00	...
79	H. D. Merrill	do	A-4	1883	...do	130	124	120	66	Gas...	125.00	350.00	Irrigation...
80	A. E. Putney	do	A-3	1892	...do	135	126	137	66	Compressed air	225.00	1,000.00	...
81	J. N. Stone	do	A-3	1873	...do	134	127	122	61	Gas...	180.00	550.00	Irrigation; do-
82	Hugh Glassell	do	A-3	1872	Bored, 12-inch	144	126	...do	...do	...do	...do	Irrigation...	75
83	A. D. Westbrook	do	A-3	...	Bored, 7-inch	144	127	112	53	Wind...	85.00	50.00	Domestic...
84	Mrs. Jennie E. Fall	do	A-3	1902	...do	151	127	67	71	...do	131	125.00	do
85	Michael Cudahy	do	B-3	1889	...do	144	131	35	47	...do	134	140	...
86	do	do	B-3	1890	...do	137	134	...do	...do	...do	90.00	75.00	do
87	E. Northcote	do	A-3	...	do	133	124	120	...do	...do	120	125.00	...
88	Mr. Slauzon	do	B-3	1882 <sup>2</sup>	...do	134	126	133	49	Hand	...do	...do	...
89	H. T. Starks	do	A-4	1900	Bored, 10-inch	122	121	132	37	Gas...	400.00	800.00	Irrigation...
90	Jacob Bosshard	do	A-4	1898	Bored, 7-inch	123	122	85	63	Wind...	102.00	200.00	Domestic...
91	Mrs. Mary Tweedy	do	B-4	1887	Bored, 4-inch	126	123	113	57	...do	108	106	do
92	F. H. Robinson	do	B-4	1885	Bored, 7-inch	109	108	106	52	...do	100.00	100.00	do
93	Mrs. H. C. Carson	do	B-7	1875	Bored, 2-inch	75	75	259	32	Artesian	...do	...do	...
94	P. J. Boland	do	B-7	1890	Bored, 4-inch	76	76	135	37	...do	100.00	100.00	Domestic; irriga-
95	L. F. Stockwell	do	B-6, 7	1898	Bored, 3-inch	75	75	241	...do	...do	100.00	100.00	tion.
96	Mr. F. Walton	do	B-7	...	Bored, 7-inch	74	74	250	31	...do	355.00	355.00	Irrigation; stock
97	D. W. Imbler	do	A-7	1902	...do	80	80	257	36	...do	...do	...do	50
98	S. J. Hull	do	A-7	1900	...do	78	78	247	33	...do	500.00	500.00	Irrigation; do-
99	J. Schaefer	do	B-7	1888	...do	73	73	320	36	...do	500.00	500.00	mestic.
100	S. Stockwell	do	C-7	1885	...do	81	81	144	41	...do	700.00	700.00	do
101	G. F. Howe	do	D, E-8	1900	...do	65	65	167	30	Hand	...do	...do	Domestic...
102	J. B. Proctor	do	D-8	...	Bored, 4-inch	70	70	145	29	Hand, artesian	...do	...do	...
103	C. Wright	do	D-8	...	Bored, 8-inch	72	72	72	29	Artesian	...do	...do	...
104	Los Angeles County	do	D-8	1900	Hydraulic, 3-inch	73	73	208	36	Roads	150.00	150.00	Roads

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Method of lift.	Cost of well.	Cost of machinery.	Quantity of water.	Miner's inches.
105 E. M. James . . . . .	San Pedro . . . . .	C-8 . . . . .	Driven, 2½-inch . . . . .	1902	71	117	35	\$75.00	\$125.00	Domestic . . . . .
106 A. J. Morrison & Co . . . . .	do . . . . .	C-7 . . . . .	Bored, 8½-inch . . . . .	1893	74	388	32	1,000.00	Irrigation . . . . .	+50
107 do . . . . .	do . . . . .	C-8 . . . . .	Bored, 7-inch . . . . .	1902	69	69	44	Gas, artesian . . . . .	do . . . . .	+110
108 L. A. Leavitt . . . . .	do . . . . .	C-8 . . . . .	Bored, 4-inch . . . . .	1895	67	250	36	Artesian . . . . .	Domestic . . . . .	5
109 R. H. Dinsmore . . . . .	do . . . . .	C-8 . . . . .	Bored, 3-inch . . . . .	1901	69	268	36	do . . . . .	do . . . . .	5
110 T. F. Shields . . . . .	do . . . . .	C-8 . . . . .	Bored, 2-inch . . . . .	1896	72	72	41	Gas, artesian . . . . .	Irrigation; domestic . . . . .	Small.
111 F. Colten . . . . .	do . . . . .	C-8 . . . . .	Bored, 7-inch . . . . .	1880	72	140	41	Wind, artesian . . . . .	do . . . . .	150.00
112 J. W. Duff . . . . .	do . . . . .	C-7 . . . . .	Hydraulic, 2-inch . . . . .	1897	80	305	39	Artesian . . . . .	do . . . . .	do . . . . .
113 M. L. McIntosh . . . . .	do . . . . .	C-7 . . . . .	Bored, 7-inch . . . . .	1877	78	78	38	do . . . . .	do . . . . .	7
114 Mrs. S. Kriem . . . . .	do . . . . .	C-7 . . . . .	do . . . . .	1896	71	535	29	do . . . . .	do . . . . .	25
115 R. B. Easley . . . . .	do . . . . .	C-7 . . . . .	Bored, 10-inch . . . . .	1902	79	150	36	Gas, artesian . . . . .	Irrigation . . . . .	+100
116 H. Williams . . . . .	do . . . . .	C-7 . . . . .	Bored, 12-inch . . . . .	1898	82	425	35	Artesian . . . . .	do . . . . .	+80
117 G. Palmer . . . . .	do . . . . .	C-7 . . . . .	Bored, 7-inch . . . . .	1896	76	76	40	do . . . . .	do . . . . .	do . . . . .
118 F. Vennass . . . . .	do . . . . .	B-7 . . . . .	Bored, 5-inch . . . . .	1875	75	145	40	do . . . . .	do . . . . .	Domestic; stock . . . . .
119 L. Abbott . . . . .	do . . . . .	B-7 . . . . .	Bored, 7-inch . . . . .	1896	78	78	45	do . . . . .	Irrigation; domestic . . . . .	do . . . . .
120 H. C. Carson . . . . .	do . . . . .	do . . . . .	do . . . . .	1873	73	264	31	do . . . . .	Domestic; irrigation . . . . .	do . . . . .
121 F. E. Stockwell . . . . .	San Antonio . . . . .	C-7 . . . . .	do . . . . .	1893	83	148	33	do . . . . .	Irrigation; domestic . . . . .	do . . . . .
122 E. H. Kincaid . . . . .	do . . . . .	C-7 . . . . .	Bored, 9-inch . . . . .	1900	86	220	30	do . . . . .	do . . . . .	8
123 C. J. Williams & Co . . . . .	do . . . . .	C-6 . . . . .	Bored, 10-inch . . . . .	1899	86	385	36	do . . . . .	Irrigation . . . . .	30
124 J. Gapper . . . . .	do . . . . .	C-6 . . . . .	Bored, 7-inch . . . . .	1895	86	146	31	Wind, artesian . . . . .	Domestic . . . . .	145.00

## WELLS IN DOWNEY QUADRANGLE.

125	J. O. Waite	do	D-7	1900	Bored, 9½-inch.....	83	475	30	Artesian.....	900.00	Irrigation.....	75
126	S. S. Mills	do	D-7	1897	Bored, 7-inch.....	84	84	36	Wind, artesian .....	70.00	Domestic.....	.....
127	P. E. Hoag	do	D-7	1885	....do.....	88	88	32	Wind.....	.....	do.....	.....
128	W. W. Young	do	D-6	1902	Bored, 10-inch.....	86	86	38	Gas, artesian.....	319.65	1,000.00	Irrigation; domestic.....
129	W. C. Lee	San Pedro	D-7	1888	Bored, 7-inch.....	77	150	37	Artesian.....	200.00	Domestic.....	15
130	do	do	D-7	1900	Bored, 10-inch.....	78	390	30	....do.....	800.00	Irrigation.....	75
131	C. Venza	do	D-7	1896	Bored, 7-inch.....	79	79	35	Wind, hand.....	.....	Domestic.....	.....
132	W. E. Bostier	do	D-7	1890	....do.....	81	283	36	Hand.....	550.00	10.00	do.....
133	Mrs. McCarty	San Antonio	D-7	1895	Bored, 3-inch.....	60	180	37	Hand, artesian.....	.....	do.....	.....
134	T. H. Abbott	do	D-6	1889	Bored, 7-inch.....	89	89	34	Wind, artesian .....	250.00	160.00	Small.....
135	B. T. Rozelle	do	E-6	1890	....do.....	89	89	35	....do.....	300.00	100.00	Small.....
136	do	do	D-6	1896	Bored, 10-inch.....	89	89	30	....do.....	.....	do.....	.....
137	C. H. Watts	do	D-6	1899	....do.....	91	91	22	Gas, artesian.....	2,500.00	1,400.00	Irrigation.....
138	W. B. Finch	do	C-6	1895	Bored, 7-inch.....	89	89	35	....do.....	2,800.00	.....	do.....
139	Elmer E. Moore	do	C-6	1895	Bored, 10-inch.....	95	467	25	....do.....	1,150.00	.....	Irrigation.....
140	do	do	C-6	.....	Bored, 7-inch.....	98	98	26	Gas, artesian.....	700.00	500.00	do.....
141	do	do	C-6	.....	....do.....	93	93	36	Wind, artesian .....	150.00	143.00	Domestic.....
142	A. W. Andrews	do	C-6	1895	....do.....	92	92	35	....do.....	.....	35.00	Domestic; irrigation.....
143	Mr. Carres	do	D-6	1903	Bored, 12-inch.....	91	91	33	Artesian.....	1,500.00	Irrigation.....	100
144	E. W. Lewis	do	C-6	1899	....do.....	92	92	36	....do.....	1,000.00+	do.....	200
145	C. H. Sessions	do	B-7	.....	Bored, 7-inch.....	82	82	140?	37 Hand, artesian.....	.....	Domestic.....	2
146	do	do	C-5	1898	Bored, 12-inch.....	97	97	375	37 Artesian.....	600.00	Stock; irrigation	+100
147	L. Snodgrass	do	B-5	1883?	Bored, 7-inch.....	96	96	46	....do.....	150.00	Domestic.....	15
148	do	do	B-5	1883?	....do.....	106	80	44	....do.....	150.00	Stock; irrigation	.....
149	Omri Bullis	do	B-5	1901	....do.....	92	92	80?	39 ....do.....	100.00	Irrigation.....	20
150	do	do	B-6	1890?	....do.....	92	92	335	31 Hand, artesian.....	1,000.00	Irrigation; domestic.....	.....
151	F. Hoppe	do	B-5	1903	Bored, 10-inch.....	99	99	385	37 Artesian.....	1,000.00	Irrigation.....	30
152	J. Tweedy	do	B-5	1893	Bored, 4-inch.....	111	111	72	48 Hand, artesian .....	75.00	10.00	Domestic.....
153	Mr. Gilky	do	C-5	1880	Bored, 8-inch.....	101	101	135	37 Artesian.....	300.00	.....	Domestic; irrigation.....
154	J. Abola	do	B-5	.....	Bored, 7-inch.....	102	102	135?	45 ....do.....	.....	Shock; irrigation	15
155	B. R. Kratzer	do	C-5	1890?	....do.....	102	102	160	36 Wind, artesian .....	300.00	50.00	Domestic.....
156	K. Swantek	do	C-5	1903	Bored, 10-inch.....	104	156	35	.....	250.00	.....	Not used.....

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Depth of well.	Elevation of surface.	Solids per 100,000.	Method of lift.	Cost of well.	Cost of machinery.	Quantity of water.	Miner's inches.
157	Mrs. E. Bryson	San Antonio	C-5	1900	Bored, 2-inch	105	130?	36	Wind.	\$0.00?	\$40.00	Domestic.	..
158	J. N. Sherman	do	C-5	1897?	do	106	120?	37	Wind, artesian.	..	128.20	do	..
159	D. B. Dodson	do	D-5	1902	Bored, 7-inch	106	101	37	Wind.	188.00	100.00	Domestic; stock; irrigation.	..
160	H. P. King	do	D-5	do	do	105	96	33	Hand.	..	..	Domestic.	..
161	M. T. King	do	D-5	1899	Hydraulic, 2-inch.	105	102	30	Wind.	41.40	108.00	Stock; domestic.	..
162	J. M. Shaw	do	D-5	1889	Bored, 4-inch	103	95	31	Hand.	175.00	..	Domestic.	..
163	R. Wallace	do	D-5	1892?	Bored, 10-inch	100	100	600+	29	Artesian	..	Irrigation.	60
164	W. H. Corbin	San Pedro	B-8	do	Bored, 4-inch	62	62	425?	33	do	..	Domestic.	..
165	W. A. Hall	do	B-8	1901	Bored, 6-inch	62	62	263	36	do	400.00	Irrigation.	11
166	James Davidson	do	B-8	do	Driven, 2-inch	62	62	..	33	do	..	Domestic; stock.	..
167	Dr. J. A. Monk	do	B-8	1900	Bored, 12-inch	59	59	811	30	do	3,000.00	Irrigation.	90
168	L. Gully	do	B-8	1899?	Bored, 10-inch	63	63	460	35	do	..	do	62
169	W. S. Peck	do	C-8	1884	Bored, 8-inch	63	63	320	35	do	400.00	do	..
170	W. L. Peck	do	C-8	1897	Bored, 3-inch	60	60	300	34	do	..	Domestic; irrigation.	..
171	J. G. Hawthorn & Son	do	C-8	1873?	Bored, 7-inch	60	60	237	38	Wind, artesian.	500.00	Domestic.	..
172	do	do	C-8	1900	Bored, 10-inch	62	62	130	Gas.	..	200.00	Irrigation.	100
173	James Legg	do	C-8	1891	Bored, 7-inch	69	69	130	35	Wind, artesian.	200.00	Domestic; irrigation.	..
174	H. B. Rice	do	C-8	1899	Bored, 10-inch	62	55	132	30	Gas.	200.00	Irrigation.	90
175	F. K. Day	do	C-8	1902	Bored, 7-inch	65	61	130	38	do	95.00	do	50
176	D. R. Meyers	do	D-8	1878?	do	69	..	500	do	..	1,600.00	do	70
177	R. B. Harris	do	C-8	1899	Bored, $\frac{9}{2}$ -inch	63	63	400	36	Artesian	600.00	do	135

## WELLS IN DOWNEY QUADRANGLE.

178	do	do	C-8	1883	Bored, 7-inch	63	400	Gas	700.00	do	†95
179	John Gains	do	D-8	1883	Bored, 8-inch	69	400	Hand	35	do	Domestic
180	H. W. Marden	do	E-8	1901	Hydraulic, 2-inch	63	457	Artesian	202.00	do	do
181	do	Los Cerritos	E-8	1903?	Bored, 10-inch	65	111	33	188.77	Not used.	do
182	Wm. Sneary	do	E-8	do	Bored, 2-inch	67	540	Artesian	200.00-	Domestic; irrigation.	do
183	T. J. Luecock	do	E-8	1891	Bored, 4-inch	68	150	30	150.00	Domestic	do
184	Mrs. Swanson	do	E-8	1902	Hydraulic, 2-inch	68	550	28	150.00	do	†3
185	H. A. Daris	do	E-9	1899	do	63	576	28	175.00	do	Small.
186	J. S. Mansfield	do	E-8	1899	do	64	600	do	200.00-	Domestic; irrigation.	†5
187	T. H. Samers	do	E-9	1889	Bored, 3-inch	60	100	34	60.00	Domestic	do
188	R. H. Parker	do	E-9	1899	Hydraulic, 2-inch	61	376	32	150.00	Irrigation	do
189	A. E. Matson	do	E-9	1889	Driven, 3-inch	60	100	30	75.00	Domestic; irrigation.	do
190	G. W. Calionette	do	E-9	1889	Bored, 6-inch	61	160	31	150.00	Domestic; stock.	Small.
191	F. E. Green	do	E-10	1901	Hydraulic, 2-inch	56	398	33	160.00	Irrigation	do
192	J. E. Cook	do	E-10	1900	do	58	430	do	Stock	do	do
193	Robert Syrett	do	E-10	1898	Bored, 2-inch	54	356	30	106.50	Domestic; stock.	1
194	W. S. McKenzie	do	D-10	1898	Bored, 8-inch	53	350	32	175.00	Irrigation	do
195	W. H. Brown	do	E-10	1897	Hydraulic, 2-inch	54	357	31	125.00	do	do
196	G. Klippe	do	D-9	1899	Bored, 2-inch	50	381	34	1,275.00	do	do
197	S. O. Houghton	do	D-10	1901	Bored, 12-inch	50	348	31	1,000.00	do	40
198	F. M. Vandiver	do	E-9	do	Bored, 7-inch	56	600	32	do	do	do
199	James Keer	do	D-9	1902	Bored, 10-inch	57	508	32	800.00	do	30
200	J. Clarbour	do	E-8.9	1902	Bored, 12-inch	60	550	32	do	do	†85
201	L. A. Clark	do	D-8	1888	Bored, 4-inch	60	400	Wind, artesian	do	Domestic.	do
202	R. Barber	do	D-8	1873?	Bored, 7-inch	62	100	33	Hand, artesian	do	do
203	A. Dionvard	do	D-8.9	1897	Hydraulic, 2-inch	60	392	29	Artesian	165.00	do
204	do	do	D-8	1900	Bored, 10-inch	62	58	115	Gas	200.00	Irrigation
205	J. H. Orr	do	D-9	1901	Bored, 12-inch	55	550	33	Artesian	1,450.00	do
206	J. Mulheron	do	C-9	1898	Bored, 2-inch	55	315	do	120.00	Domestic; stock.	47
207	Chester Robertson	do	D-9	1901	Bored, 7-inch	55	766	35	do	Irrigation	6
208	Talkington Bros.	do	C-9	1878	do	54	280	33	700.00	Domestic	50
209	Mrs. Carson	do	C-9	1899	Bored, 8-inch	51	750	33	1,700.00	Irrigation	†25
210	James Taylor	do	C-9	1883	Bored, 7-inch	55	426	Gas	600.00	do	do

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well	Elevation of surface, feet.	Elevation of water, feet.	Depth of well.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.	Miner's inches.	
211	J. L. Shepard	San Pedro	C-9	1901	Bored, 7-inch.....	55	50	100	36	\$45.00	\$150.00	Domestic.	.....	.....	
212	J. M. Spencer	do	C-9	1900	Bored, 9½-inch.....	52	52	32	Artesian.	1,500.00	.....	Irrigation.	.....	.....	
213	J. J. Harshman	do	B-8	1900	Bored, 12-inch.....	65	65	480	do.	850.00	.....	.....	.....	Small.	
214	John Hight	do	C-9	1902	Bored, 10-inch.....	54	50	135	.....	170.00	.....	Irrigation.	.....	80	
215	J. M. Shepard	do	C-9	1900	do	60	55	140	do.	.....	.....	.....	.....	115	
216	Chas. A. Heath	do	C-9	1895	Bored, 2-inch.....	55	53	94	Hand.	50.00	.....	Stock.	.....	.....	
217	H. A. Wittich	do	C-9	1883?	Bored, 7-inch.....	50	50	545	30	Artesian.	2,000.00	120.00	Domestic.	.....	.....
218	J. M. Hart	do	B-9	1902	Bored, 12-inch.....	57	57	635	34	do.	2,000.00	.....	Irrigation.	.....	54
219	J. J. Harshman	do	B-8	1897	Bored, 2-inch.....	65	65	350	34	do.	.....	.....	Domestic; irrigation.	.....	.....
220	John Gries	do	B-8	1897	do	70	70	252	34	do.	152.00	.....	Stock.	.....	.....
221	W. J. Higgins	do	A-8	1868	Bored, 7-inch.....	78	68	114	33	Wind.	.....	.....	Domestic; irrigation.	.....	.....
222	A. M. Peck	do	C-8	1878?	do	62	57	130	42	do.	200.00	.....	Domestic; stock.	.....	.....
223	H. B. Rice	do	C-8	1873	do	62	57	130	38	do.	200.00	100.00	Domestic.	.....	.....
224	John Hight	do	D-8	1898	Bored, 3-inch.....	61	56	70	41	Hand.	35.00	.....	.....	do.	.....
225	W. P. Anderson	do	C-8	1883?	Bored, 7-inch.....	64	64	380	38	Artesian.	2,000.00	.....	Domestic; stock.	.....	.....
226	F. K. Day	do	D-8	1901	Bored, 2-inch.....	64	64	105	36	Hand.	45.00	.....	Domestic.	.....	.....
227	D. R. Meyers	do	D-8	1888?	Bored, 4-inch.....	66	60	130	35	Wind.	.....	do.	.....	do.	.....
228	R. B. Harris	do	D-8	1873?	Bored, 7-inch.....	63	58	100	35	do.	.....	100.00	.....	do.	.....
229	Los Cerritos	E-9	1891	Bored, 3-inch.....	63	58	100	35	Hand.	50.00	.....	do.	.....	.....	
230	San Pedro	D-8	1885	Bored, 7-inch.....	67	66	132	.....	Not raised.	250.00	.....	Not used.	.....	.....	
231	E. R. Collingridge	do	D-8	1894	do	66	66	566	32	Artesian.	1,500.00	.....	Irrigation.	42	.....
232	A. Anderson	do	D-8	1898	Bored, 2-inch.....	65	65	.....	35	Wind.	.....	Stock.	.....	.....	.....



*Wells in the Downey quadrangle—Continued.*

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface above sea-level.	Elevation of water.	Depth of well.	Solids per 100,000.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
265	Los Angeles Bank	San Pedro	B-8, 9	1878?	Bored, 7-inch.....	65	300	35	Artesian.....	Irrigation.....	\$75.00			
266	Mrs. M. Wilson	do	B-9	1873?	Dug, 8-foot diameter.....	75	65	42	Wind.....	Domestic; stock.....				
267	J. M. Hart	do	B-8	do	Driven, 3-inch.....	57	57	518	29	Artesian.....	Domestic; irrigation.	Small.		
268	do	do	B-9	do	Bored, 3-inch.....	57	57	316	31	do	Stock.....			
269	Pac. Electric R. R. Co.	do	B-10	do	Dug, 6 by 8 foot.....	52	50	15?	do	Electric motor.....	Domestic.....			
271	Mrs. Geo. Carson	do	C-10	1898	Driven, 2-inch.....	51	51	350	33	Artesian.....	do	Small.		
272	J. Francis	do	C-10	1894	Bored, 2-inch.....	50	do	85	37	Wind.....	Domestic; stock.....			
273	do	do	C-10	1903	Bored, 10-inch.....	50	do	125	do	Not installed.....	Irrigation.....			
274	Miss Dominguez	do	B-10	do	Driven, 2-inch.....	50	do	90	37	Hand.....	Domestic.....			
275	J. M. Spencer	do	C-9	1878?	Bored, 7-inch.....	52	52	250	32	Artesian, and wind.	Domestic; stock.....	Small.		
277	T. W. Edwards	do	C-8	1896	Driven, 2-inch.....	69	69	700	31	Artesian.....	Irrigation.....			
278	do	do	C-8	1897	do	69	69	700	31	do	Irrigation; stock.....			
279	J. S. Martin	do	C-8	1902	Bored, 7-inch.....	69	66	132	39	Gas.....	Irrigation.....	100	1,200.00	
280	do	do	C-8	1899	Bored, 2-inch.....	69	69	376	32	Artesian.....	Domestic; irrigation.	122.50		
281	H. W. Marden	Los Cerritos	E-8	1901	do	65	65	100	33	do	Not used.....			
282	J. G. Bilen	do	D-8	do	do	61	61	320?	33	do	Stock.....	#4		
283	L. A. Clark	do	D-8	1901	Bored, 2½-inch.....	61	61	128	do	do	Irrigation.....	Small.		
284	do	do	D-9	1898	Bored, 2-inch.....	61	61	310	32	do	do	3		
285	H. P. Epperson	do	E-8	1902	do	60	60	159	29	do	Stock.....			
286	James Kerr	do	D-9	1902	do	57	400	34	do	do	Domestic.....	Small.		
287	J. Clarbour	do	E-8, 9	1891	Driven, 2-inch.....	60	60	285	32	do	Irrigation.....			

288	do	E-8, 9	1891	Driven, 3-inch	60	490	do	do	do	do	do	do	
289	do	E-9	1891	Bored, 2-inch	59	485	31	do	do	do	do	Domestic	
290	do	E-9	1891	Bored, 3-inch	59	485	31	do	do	do	do	Stock	
291	F. M. Noreen	E-9	1900	Bored, 4-inch	53	485	35	do	do	do	do	Domestic; irrigation.	
292	do	D-9	1901	do	54	54	87	31	do	do	do	Irrigation	
293	do	D-9	1901	do	54	54	87	31	do	do	do	Irrigation	
294	J. C. Timmons	D-9	1901	Bored, 2-inch	53	465	32	do	do	do	do	Domestic; irrigation.	
295	do	D-9	1901	do	51	51	367	32	do	do	do	Irrigation	
296	J. Stinson	D-9	1896	Bored, 3-inch	52	75	do	do	do	do	do	Irrigation	
297	do	D-9	1897	Bored, 2-inch	420	31	do	do	do	do	do	Domestic; irrigation.	
298	S. O. Houghton	do	D-10	Bored, 2½-inch	50	50	320	31	Artesian, wind.	do	do	Domestic; stock.	
299	G. Klippel	do	D-9	Bored, 2-inch	51	51	355	32	Artesian	125.00	125.00	Irrigation	
300	do	do	D-10	1899	do	51	280 <sup>f</sup>	33	do	do	do	do	
301	do	do	E-10	1897	do	52	350	33	do	do	do	Stock	
302	do	do	D, E-9	1897	do	52	86	26	do	do	do	Domestic; stock	
303	G. H. Bixby	do	D-10	1903	Bored, 12-inch	50	907	26	do	do	do	Irrigation	
304	do	do	D-10	1880	Bored, 4-inch	49	49	400 <sup>b</sup>	37	do	do	Domestic	
305	do	do	D-10	1898	Bored, 2-inch	49	49	400 <sup>b</sup>	28	do	do	do	
306	do	do	C-10	1898	do	49	49	420	32	do	do	Domestic; irrigation.	
307	do	do	C-10	1898	do	49	440	32	do	do	do	Domestic; stock.	
308	do	D-11	1890?	Bored, 7-inch	50	50	300 <sup>e</sup>	31	do	do	do	Small	
309	do	D-11	do	do	49	49	350?	do	do	do	do	Not used	
310	do	D-10	1903	Bored, 12-inch	51	51	682	26	do	do	do	Irrigation	
311	do	D-10	1890?	Bored, 2-inch	52	52	350	do	do	do	do	Stock	
312	J. Worst	do	E-10	1900	do	54	400	30	do	do	do	Irrigation; stock	
313	do	E-10	E-10	Bored, 3-inch	54	54	160	32	Hand, artesian.	140.00	140.00	Irrigation	
314	F. E. Green	do	E-10	1899	Bored, 2-inch	56	56	398	33	Artesian	160.00	160.00	do
315	do	E-10	1889	Bored, 7-inch	55	55	85	26	Wind	do	do	Domestic; irrigation	
316	G. W. Calionette	do	E-9	Bored, 2-inch	61	61	368	31	Artesian	300.00	300.00	Irrigation	
317	Ed White	do	E-9	Bored, 6-inch	60	60	150	30	do	do	do	Domestic	
318	Z. Lent	do	E-9	Bored, 2-inch	55	55	330	32	do	do	do	Irrigation; domestic	

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
319	A. E. Matson	Los Cerritos	E-9	1890	Bored, 3-inch	61 61 400 28 Artesian	\$200.00	Miner's inches.	Irrigation	...
320	do	do	E-9	1889	Bored, 2-inch	61 61 380 do	125.00	...	Domestic; stock	...
321	Mr. Hamilton	do	E-9	do	Bored, 4-inch	60 60 90 do	do	Stock	...	Stock
322	do	do	E-9	do	Bored, 6-inch	60 60 200 28 do	do	...	...	Small.
323	do	do	E-9	do	Bored, 2-inch	55 55 350? 32 do	do	...	Stock; irrigation	...
324	Z. Lent	do	E-9	1897	do	55 100+ 33 do	do	...	Irrigation; stock	...
325	do	do	E-9	1897	do	55 57 567 32 do	do	...	...	...
326	R. H. Parker	do	E-9	1899	do	57 57 32 do	200.00	...	Irrigation	...
327	Lydia Withers	do	E-9	1899	Bored, 4-inch	61 56 30 34 Wind	do	Stock	...	...
328	H. A. Davis	do	E-9	1895	Bored, 2-inch	63 68 151 Artesian	45.45	...	Irrigation	...
329	H. P. Epperson	do	E-9	1897	do	63 63 26 do	300.00	do	do	...
330	John MacLmoil	do	E-8	1898	do	66 66 610 25 do	250.00	do	...	1
331	do	do	E-8	1898	do	66 66 210 25 do	100.00	...	Irrigation; domestic	1
332	M. C. Isom	do	E-8	1895	do	70 70 158 25 Wind, artesian	100.00	...	Stock; domestic	...
333	E. Mason	do	E-8	1880	Bored, 5-inch	69 69 140 28 Hand	150.00	...	Domestic; stock	...
334	do	do	E-8	1880	Bored, 4-inch	69 69 165 28 do	150.00	...	Domestic	...
335	F. O. Sward	do	E-8	1889	Bored, 2-inch	70 70 180 31 Wind	...	...	Irrigation	...
336	do	do	E-8	1903	do	69 69 169 Artesian	75.00?	...	Domestic	...
337	M. J. Luccock	do	E-8	1890	Bored, 4-inch	73 73 280 26 Hand	200.00+	...	...	...
338	Chas. Roberts	do	E-8	1892	Bored, 2-inch	72 71 114 26 Wind	15.00	...	do	...
339	do	do	E-8	1901	Bored, 3-inch	72 72 140 Wind, gas	200.00	Irrigation	...	...
340	Clearwater Cooperative Creamery	do	E-8	1902	Bored, 2-inch	76 76 160 Gas, artesian	50.00	Domestic	...	...

## WELLS IN DOWNEY QUADRANGLE.

341	E. A. Rodgers	do	E-8	1893?	do	75	125	26	Artesian	50.00	Stock	
342	S. N. Jennings	do	E-7	1889	Bored, 7-inch	74	130	26	Wind	200.00	Domestic.	
343	do	do	E-7	1900	Bored, 10-inch	77	77	25	Hand, artesian	200.00?	Irrigation; stock	
344	do	do	E-8	1891	Bored, 7-inch	70	70	26	Artesian	70.00	Stock	
345	J. V. Stewart	do	E-7	1897	Bored, 2-inch	77	77	25	do	70.00	Stock; domestic	
346	do	do	E-7	1897	Bored, 3-inch	79	79	25	do	70.00	Stock; irrigation	
347	C. Hardue	do	E-7	1898	Bored, 10-inch	75	75	25	Gas, artesian	10	Irrigation	
348	do	do	E-7	1895	Bored, 7-inch	77	77	25	Artesian	Not used	do	
349	L. Stiner	do	E-7	1901	do	75	75	26	Hand, artesian	180.00	Domestic; irrigation	
350	do	do	E-7	1899	Bored, 2-inch	75	75	25	Artesian	60.00	Stock	
351	Henry Carson	do	E-7	1897?	Bored, 4-inch	75	75	26	do	80.00	Domestic	
352	do	do	E-7	1897?	Bored, 6-inch	75	75	27	do	125.00	Small.	
353	R. A. McCurdy	do	E-7	1897	Bored, 7-inch	80	80	27	do	Not used	do	
354	Geo. Hinman	do	E-7	1891	Bored, 4-inch	80	80	26	do	Domestic	Domestic; stock	
355	H. J. Kent	do	E-7	1898?	Bored, 7-inch	79	79	27	do	125.00	Domestic	
356	J. M. Williams	do	E-7	1902	Bored, 2-inch	81	81	28	do	150.00?	do	
357	Geo. A. Williams	do	E-6, 7	1899	do	81	81	26	do	53.00	do	
358	P. Gunn	do	E-7	do	do	81	81	26	do	do	do	
359	Orr & Orr	do	San Antonio	D-8	1894	Bored, 7-inch	71	71	180	do	do	do
360	do	do	D-8	1894	Bored, 9½-inch	71	71	390	do	do	do	
361	Carpenter estate	do	D-7	1897?	Bored, 10-inch	77	77	230	35	Gas, artesian	Irrigation	
362	do	do	D-7	1897?	do	74	74	230	26	do	do	
363	do	do	E-7	do	Bored, 8-inch	76	77	161	do	do	do	
364	do	do	D-8	do	Bored, 10-inch	73	73	32	Hand	do	do	
365	Chas. F. Williams	do	D-8	1890	Bored, 7-inch	65	62	147	33	do	do	
366	J. H. Williams	do	D-8	1888	do	72	71	186	Artesian	400.00	do	
367	Compton City school district	do	D-8	1891	Hydraulic, 3-inch	72	150	33	Hand	do	do	
368	John Morton	do	D-8	1902	Bored, 7-inch	74	73	133	Gas	150.00	Irrigation	
369	H. H. Taylor	do	C-8	1890	Bored, 2-inch	71	71	250	34	Artesian	Domestic	
370	J. J. Morton	do	C-7	1876	Bored, 7-inch	75	70	360	Gas	350.00	Irrigation	
371	do	do	C-7	1896	Hydraulic, 2-inch	72	72	133	Artesian	2,000.00	Domestic	
372	do	do	C-8	1883	Hydraulic, 3-inch	72	69	130	Gas	200.00	Irrigation; do-	
373	Mrs. A. Mayo	do	C-8	1875	Bored, 6-inch	72	68	150	33	do	domestic.	

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface, feet.	Depth of well.	Soil per 100,000.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water, Miner's inches.
374	Mrs. A. Mayo	San Pedro	C-7	1883	Bored, 7-inch	75	70	150	\$200.00		Irrigation.	+75
375	J. A. Howie	do	C-7	do	do	72	69	125	200.00	\$100.00	Stock; domestic.	
376	G. W. Neese	do	C-8	1891	do	75	75	150	250.00	800.00	Irrigation.	125
377	do	do	C-7	1890	do	72	68	150	250.00	150.00	Domestic.	
378	Mr. Marlowe	do	D-7	1877	do	80	77	150	34	do	do	
379	Sherman estate	do	D-7	1892	Bored, 5-inch	80	76	150	34	do	do	
380	M. A. Rozelle	do	D-7	do	Bored, 2-inch	81	117	37	do	35.00	do	
381	Chas. Tibbets	San Antonio	D-7	1902	Bored, 10-inch	82	81	162	34	275.00	800.00	Irrigation.
382	do	do	D-7	1883?	Bored, 5-inch	82	77	150*	34	do	do	
383	Geo. W. Phelan	do	E-6, 7	1897?	Bored, 9-inch	82	82	680	25	do	Irrigation.	+150
384	do	do	E-7	1897?	Bored, 7-inch	82	81	300+	25	do	do	
385	do	do	E-7	1897	Bored, 2-inch	82	160	do	Artesian.	Not used.	do	
386	do	do	E-7, 8	1897	Bored, 8-inch	82	81	300	do	do	do	
387	do	do	E-7	do	Bored, 7-inch	80	250	26	Hand.	do	Domestic.	
388	do	do	D-7	do	Bored, 2-inch	80	160	do	Artesian.	Stock.	do	
389	E. Beazley	do	D-7	do	do	80	80	160	do	do	Not used.	
390	F. C. Carroll	do	D-7	1883	Bored, 7-inch	84	81	180	33	do	Irrigation.	75
391	V. H. Stillwell	do	D-6	1902	Bored, 10-inch	88	88	176	35	do	do	100
392	T. H. Abbott	do	D-6	1900	do	90	88	169	33	do	do	
393	B. T. Rozelle	do	D-6	1895	Bored, 12-inch	87	86	169	33	do	do	200
394	C. H. Watts	do	E-6	1891	Bored, 4-inch	87	83	140	25	do	Domestic.	
395	do	do	D-6	1893	Bored, 7-inch	87	87	300	do	do	Not used.	
396	Dr. Davis	do	E-5	1891	Bored, 4-inch	96	88	150	30	Hard.	Domestic.	40.00

## WELLS IN DOWNEY QUADRANGLE.

397	Alexander Gunn	do	E-5	1903	Bored, 12-inch	100	625	23	Artesian	1,600.00	Irrigation	54
398	do	do	E-5	1889	Bored, 4-inch	100	100	536	do	Not used.	Stock	..
399	do	do	D-5	1890	Bored, 6-inch	85?	85	530?	31	do	Irrigation	85
400	R. Gilhoosen	do	E-5	1902	Bored, 10-inch	98	91	154	27	Gas	350.00	950.00
401	do	do	E-5	1898	Bored, 2-inch	98	91	128	27	Wind	175.00	Domestic.
402	D. Lane	do	E-6	1899	Bored, 12-inch	90	90	75?	25	Artesian	2,000.00	Irrigation
403	J. B. Norton	do	D-5	1880?	Bored, 7-inch	100	100	200?	41	Wind	..	Domestic.
404	L. Snodgrass	do	C-5	1897	Bored, 12-inch	103	103	800	34	Artesian	4,000.00	Irrigation
405	do	do	D-5	1895	Bored, 10-inch	103	99	150	36	Gas	..	do
406	do	do	D-5	1890	Bored, 8-inch	103	94	150	38	Wind	..	Domestic.
407	A. W. Miller	do	D-5	1902	Bored, 10-inch	104	99	176	39	Gas	350.00	1,650.00
408	H. Lewis	do	D-5	1883	Bored, 7-inch	104	99	140	37	Hand	..	Domestic.
409	G. W. Tweedy	do	D-5	1899	Bored, 4-inch	105	100	155	33	Wind	300.00	150.00
410	L. D. Tweedy	do	D-4	1900	Bored, 12-inch	118	110	698	..	Gas	*4,500.00	Irrigation
411	do	do	E-5	1884?	Bored, 10-inch	104	103	250?	38	Wind	..	Domestic.
412	do	do	D-5	1903	Bored, 5-inch	109	101	145	..	Hand	145.00	..
413	H. W. Wythe	do	D-4	1901	Bored, 10-inch	105	99	174	..	Wind, gas	300.00	300.00
414	Mrs. Wilbur Woods	do	D-4	1897	Bored, 4-inch	104	99	83	..	Hand	..	Domestic; irrigation.
415	C. O. Humphreys	do	D-4	do	Bored, 2-inch	111	..	85?	39	Wind	..	Domestic; irrigation.
416	Mr. White	do	D-4	1901	Bored, 12-inch	112	107	530	31	Hand	1,600.00	Domestic.
417	do	do	D-4	do	Bored, 2-inch	112	..	85?	..	do	..	Not used.
418	Samuel Martin	do	C-5	do	Bored, 7-inch	105	105	160	39	Artesian, gas	..	do
419	do	do	C-5	do	..	105	105	160	..	Artesian	..	do
420	K. Swantek	do	C-5	1890?	Bored, 4-inch	105	105	150?	..	do	..	Domestic
421	Samuel Martin	do	C-5	1880	Bored, 7-inch	100	100	160	38	Wind	300.00	..
422	do	do	C-5	1880	..	98	98	160	41	Artesian	300.00	Irrigation
423	do	do	C-5	1895?	..	98	98	160	40	do	..	..
424	William Lynch	do	C-6	1876	Bored, 6-inch	97	97	172	37	..	275.00	Domestic
425	Mr. Kincaid	do	C-6	1896	Bored, 4-inch	93	90?	180	37	Hand	..	do
426	Fred Niel	do	D-6	1895?	Bored, 7-inch	91	..	180	..	Gas	200.00	Irrigation
427	Mr. Carries	do	D-6	do	..	90	84	180	38	Hand	..	Stock
428	Frank Beck	do	D-6	1895?	Bored, 2-inch	93	..	170	..	do	..	Domestic
429	H. W. Lewis	do	C-6	1895	Bored, 7-inch	91	91	133	37	Hand, artesian	150.00	Irrigation; domestic.

*Wells in the Downey quadrangle—Continued.*

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Cost of machinery.	Use of water.	Quantity of water.
430	Chas. Bates	San Antonio	C-6	1902	Bored, 2-inch.	91	91	37	Hand.	\$55.00
431	Lugo school district	do	C-6	1898	do	92	92	37	Artesian	55.00
432	B. Eberly	do	C-6	1902	do	92	92	36	Hand	60.00
433	E. W. Lewis	do	C-6	1875	Bored, 7-inch	91	91	38	Artesian	130.00
434	do	do	C-6	1885	do	90	93	do	do	130.00
435	Joseph Hohn	do	C-6	1894?	do	90	90	41	do	do
436	G. F. Daetweiler	do	C-6	1894	do	90	90	41	do	do
437	do	do	C-6	do	do	90	90	130	do	do
438	John Eichholzer	do	B-6	1897?	Bored, 4-inch	91	91	44	do	do
439	G. F. Daetweiler	do	B-6	1898?	do	91	91	46	do	do
440	C. H. Sessions	do	B-5	do	Bored, 7-inch	98	98	160	do	do
441	do	do	B-5	do	Bored, 10-inch	99	99	160	51	do
442	do	do	B-5	do	do	99	99	160	51	do
443	do	do	C-5	do	Bored, 12-inch	95	95	380	do	do
444	do	do	B-6	1900?	do	88	88	380	36	do
445	do	do	B-6	1900?	do	88	88	380	35	do
446	do	do	B-6	do	Bored, 6-inch	85	85	140	do	do
447	John Simm	do	B-6	1901	Bored, 7-inch	88	88	325	32	do
448	Frank Wall	do	C-6	1901	Bored, 2-inch	88	88	130	39	do
449	James Nichols	do	C-6	1883?	Bored, 6-inch	92	92	350	36	Artesian, wind
450	E. Fickewirth	do	C-6	1883	Bored, 2-inch	91	91	130	38	Artesian, hand

451	W. B. Finch.	do	C-6	do	90	90	37	Hand	do	do	do	do
452	Chas. Tibbetts	do	C-6	1887	Bored, 4-inch.	87	87	140	37	do	Irrigation	†100
453	H. Catey	do	C-6	1898	Bored, 12-inch.	88	88	382	35	Artesian	1,200.00	Not used.
454	do	do	C-6	1878?	Bored, 7-inch.	88	88	140	do	do	do	do
455	Chas. Tibbetts	do	C-6	1891	do	87	87	140	do	do	do	do
456	H. Musselman	do	C-7	1885	Bored, 9-inch.	85	85	145	38	Wind	200.00	Domestic
457	O. J. Williams	do	C-6	1880?	Bored, 7-inch.	87	84	140	36	Hand	do	do
458	J. L. Winger	do	C-7	1901	Bored, 2-inch.	84	84	380	35	Artesian	do	do
459	Fred Daetwiler	do	D-7	1902	do	83	83	140	38	Hand	do	do
460	F. M. Kincaid	do	D-7	1888?	Bored, 7-inch.	83	83	4f0	35	Artesian	75.00	do
461	J. O. Waite	do	C-6	1888	do	87	87	135	41	do	240.00	Irrigation
462	John T. Daetwiler	do	C-6	1878	do	87	87	135	41	do	300.00	do
463	do	do	C-7	1891	do	87	86	260	37	Wind	125.00	Stock; domestic
464	G. Yeoman	do	C-7	1897	Bored, 10-inch.	87	87	325	35	Artesian	600.00	Irrigation
465	do	do	C-7	1894	Bored, 4-inch.	85	85	130	35	do	do	Domestic
466	Eureka Cooperative Creamery.	do	C-7	1887	Bored, 7-inch.	84	84	150	37	Artesian	do	Irrigation
467	M. P. McDonald	do	C-7	1897	do	84	84	335	33	do	540.00	do
468	do	do	C-7	1894?	Bored, 3-inch.	82	82	140	33	do	do	Domestic
469	H. M. Williams	do	C-7	1894?	Bored, 7-inch.	80	80	145	38	do	do	Not used.
470	S. Stockwell	do	C-7	1899	do	78	78	350	35	do	750.00	Irrigation
471	Mrs. Hastings	do	C-7	1895	do	71	71	135	40	do	500.00	Domestic
472	do	do	C-7	1895	do	71	71	135	do	do	500.00	Not used.
473	do	do	C-7	1897	Bored, 2-inch.	77	77	250?	33	do	150.00	Domestic; stock
474	M. Elffman	do	C-7	1896	Bored, 7-inch.	77	77	315	do	do	500.00	Small.
475	N. L. McIntosh	do	C-7	1894	Bored, 2-inch.	78	78	350	33	do	55.00?	Domestic
476	Mrs. A. A. Williams	do	C-7	1902	Bored, 10-inch.	79	79	150	35	Wind	250.00	do
477	R. B. Easley	do	C-7	1891	Bored, 3-inch.	81	81	320	do	Artesian	do	Not used.
478	J. H. Easley	do	C-7	1899	Bored, 8-inch.	77	77	150	do	do	800.00	Irrigation
479	A. W. Miller	do	C-8	1898	Bored, 9/2-inch.	71	71	400	33	Artesian	40.00	do
480	J. L. Johnson	do	C-7	1898	Bored, 2-inch.	78	75	80	41	Hand	185.00	Domestic
481	A. R. McIntosh	do	C-7	1880?	Bored, 7-inch.	75	75	150	do	Gas	150.00	Irrigation
482	F. Vennass	do	C-7	1897	do	74	74	150	37	do	150.00	do
483	do	do	B-7	1899	do	75	75	150	40	Artesian	150.00	do

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Depth of well.	Solids per 100,000.	Cost of lift.	Cost of machinery.	Use of water.	Miner's inches.
486 F. Walton.....	San Pedro.....	C-7.....	1899	Bored, 7-inch.....	74	74	150	39	Artesian.....	\$150.00	Irrigation.....	19
487 F. E. Stockwell.....	San Antonio.....	C-7.....	1883	do.....	83	83	148	41	do.....	250.00	do.....	+60
488 do.....	do.....	C-6.....	1891	do.....	83	83	158	40	do.....	180.00	do.....	+60
489 do.....	do.....	C-7.....	1881	do.....	82	82	147	40	do.....	250.00	do.....	.....
490 H. C. Carson.....	San Pedro.....	C-7.....	1888	Bored, 6-inch.....	77	77	163	39	Hand, artesian.....	200.00	Irrigation; stock.....	.....
491 L. Abbot.....	do.....	C-7.....	1885?	Bored, 7-inch.....	80	80	150*	42	Artesian.....	200.00	do.....	.....
492 E. Miller.....	do.....	C-7.....	1875?	do.....	75	75	136	43	do.....	136.00	Domestic.....	Small.
493 Wm. McDivitt.....	do.....	B-7.....	1890	do.....	80	80	145	41	do.....	150.00	Irrigation.....	25
494 do.....	do.....	B-7.....	1901	Bored, 10-inch.....	80	80	150	41	do.....	500.00	do.....	+25
495 do.....	do.....	B-7.....	1901	do.....	78	78	150	41	do.....	500.00	do.....	25
496 do.....	do.....	B-7.....	1888	Bored, 2-inch.....	78	78	150	39	Artesian, hand.....	60.00	Stock; domestic.....	Small.
497 J. R. Hann.....	do.....	B-7.....	1902	do.....	77	77	233	39	Artesian.....	104.50	Domestic; irrigation.....	2
498 J. S. Palmer.....	do.....	B-7.....	1883?	Bored, 7-inch.....	76	76	260	33	do.....	100.00	Domestic.....	.....
499 G. Palmer.....	do.....	B-8.....	1893	Bored, 2-inch.....	67	67	228	34	do.....	100.00	Domestic; stock.....	Small.
500 J. A. McMillan.....	do.....	B-7.....	1901	do.....	75	75	220	34	do.....	100.00	Domestic; irrigation.....	.....
501 R. H. Dinsmore.....	do.....	C-8.....	1881	Bored, 7-inch.....	71	71	130	42	Hand.....	.....	Domestic.....	.....
502 C. E. Wood.....	do.....	C-8.....	1899	Bored, 2-inch.....	73	73	310	34	Artesian.....	135.00	Domestic; irrigation.....	6
503 A. Sloane.....	dc.....	C-7.....	1900	Bored, 9½-inch.....	73	73	339	33	do.....	600.00	Irrigation.....	+50
504 do.....	do.....	C-8.....	1898	Bored, 3-inch.....	70	70	275	33	do.....	135.00	Domestic.....	12
505 L. A. Leavitt & Co.....	do.....	C-8.....	1894	Bored, 7-inch.....	68	68	290	35	do.....	300.00	Irrigation.....	.....
506 H. J. Mayo.....	do.....	B-8.....	1900	do.....	67	67	280	33	do.....	700.00	do.....	20
507 do.....	do.....	B-8.....	1900	Bored, 2-inch.....	68	68	280	33	do.....	300.00	Domestic.....	Small.

## WELLS IN DOWNEY QUADRANGLE.

508	W. G. Legg.....	do.....	B-8.....	1899	Bored, 4-inch.....	70	260	34.....	200.00	do.....	do.....	do.....	
509	Mrs. J. Spencer.....	do.....	B-8.....	1896	Bored, 2-inch.....	70	70	37.....	100.00	Domestic; stock.....	do.....	Small.	
510	C. J. Clark.....	do.....	B-8.....	do.....	do.....	69	200	35.....	do.....	Irrigation.....	do.....	Irrigation.	
511	do.....	do.....	B-8.....	do.....	Bored, 3-inch.....	70	70	35.....	do.....	Not used.....	do.....	+10	
512	do.....	do.....	B-8.....	do.....	Bored, 7-inch.....	70	71	34.....	do.....	Domestic.....	do.....	Small.	
513	J. F. Norton.....	do.....	B-8.....	1895	Bored, 3-inch.....	69	69	35.....	do.....	Domestic.....	do.....	Small.	
514	L. Gully.....	do.....	B-8.....	do.....	Bored, 2-inch.....	60	60	34.....	do.....	do.....	do.....	do.....	
515	Chas. Wright.....	do.....	B-8.....	1897	Bored, 6-inch.....	67	67	35.....	do.....	Irrigation; domestic.	do.....	+30	
516	L. Gully.....	do.....	B-8.....	do.....	Bored, 4-inch.....	63	63	35.....	do.....	do.....	do.....	do.....	
517	Southern Pacific Co.....	do.....	B-8.....	1897	Bored, 7-inch.....	66	66	400.....	33.....	Domestic.....	do.....	Small.	
518	do.....	do.....	B-8.....	do.....	1888?	Bored, 2-inch.....	67	67	180.....	33.....	do.....	do.....	3
519	R. H. Wilson.....	do.....	B-8.....	1893	Bored, 7-inch.....	66	66	225.....	33.....	Artesian, wind.....	500.00	Irrigation.	
522	J. Malcolm.....	do.....	B-8.....	1897	do.....	70	70	310.....	35.....	Artesian.....	375.00	Irrigation.	
523	Michael Ruffner.....	do.....	B-8.....	1895	Bored, 2-inch.....	67	67	193.....	33.....	do.....	100.00	Domestic.....	
524	do.....	do.....	B-8.....	1888?	Bored, 6-inch.....	67	67	216.....	33.....	do.....	900.00	Domestic; stock.....	
525	do.....	do.....	B-8.....	1882?	do.....	66	66	230.....	35.....	do.....	900.00	Stock.....	
529	S. M. Bise.....	do.....	B-8.....	1899	Hydraulic, 2-inch.	68	68	223.....	33.....	do.....	110.00	Stock.....	
531	Sarah I. Wigginton.....	do.....	B-8.....	1885?	Bored, 7-inch.....	67	67	250.....	32.....	Gas.....	500.00	Domestic.....	
532	J. D. McNeil.....	do.....	B-8.....	1898	Bored, 2-inch.....	70	70	258.....	34.....	Artesian.....	230.00	Domestic; irrigation.....	
533	Wm. Shamrak.....	do.....	B-8.....	1891	Bored, 3-inch.....	70	70	205.....	35.....	Artesian, wind.....	205.00	Domestic.....	
534	B. Walton.....	do.....	B-8.....	do.....	Bored, 2-inch.....	70	70	35.....	Wind.....	do.....	125.00	do.....	
535	Methodist Episcopial parsonage.	do.....	B-8.....	1878?	Bored, 7-inch.....	70	70	100.....	34.....	Artesian.....	do.....	do.....	
536	E. D. Morden.....	do.....	B-8.....	1897	Hydraulic, 2-inch.	68	68	210.....	35.....	do.....	87.50	do.....	
538	Compton City school district.	do.....	B-8.....	1893	Bored, 2-inch.....	70	70	200?	34.....	do.....	100.00	do.....	
539	Robert Shear.....	do.....	B-8.....	1895	do.....	255	33.....	do.....	125.00	do.....	do.....	do.....	
540	G. W. Rodgers.....	do.....	B-8.....	1894	do.....	225?	35.....	do.....	100.00	do.....	do.....	do.....	
541	J. D. Gill.....	do.....	B-8.....	1900	do.....	67	67	200?	35.....	do.....	100.00	do.....	
542	E. M. Yankee.....	do.....	B-8.....	do.....	do.....	69	69	210?	33.....	do.....	105.00	Domestic; irrigation.....	
543	John Boyer.....	do.....	B-8.....	1903	do.....	70	70	381.....	34.....	Stock; domestic.....	202.50	Stock; domestic.....	
544	H. M. Dillon.....	do.....	B-8.....	1895	do.....	69	69	200+	33.....	Domestic.....	110.00	Domestic.....	
545	Thos. J. Peachey.....	do.....	B-8.....	1897	do.....	69	69	160.....	33.....	do.....	do.....	Small.	
546	G. D. Barron.....	do.....	B-8.....	do.....	Bored, 7-inch.....	71	71	32.....	Hand.....	do.....	do.....	do.....	

## 60 UNDERGROUND WATERS, SOUTHERN CALIFORNIA—II. [NO. 138]

Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.		Depth of well.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.	Miner's inches.	
						Feet.	Feet.							
547	Robert Shear	San Pedro	A-7	1887	Bored, 7-inch	76	255	Artesian	\$250.00	Irrigation	...	...	...	
548	do	do	A-7	1895	do	75	255	do	do	do	do	do	do	† 60
549	B. F. Lasswell	do	A-8	1895	Bored, 2-inch	75	175	Artesian, hand	75.00	Domestic	...	Small	...	...
550	John Stevens	do	A-8	1885	Bored, 7-inch	79	440	Wind	1,000.00	do	do	do	do	...
551	O. S. Long	do	A-8	do	do	80	77	Hand	...	do	do	do	do	...
552	A. C. Bird	do	A-8	do	do	77	175	Wind	...	do	do	do	do	...
553	Mrs. Minnie Stuart	do	A-8	1885	do	81	76	160	33	do	do	do	do	...
554	A. C. Bird	do	A-7	1898?	Bored, 2-inch	76	175	Artesian, hand	...	do	do	do	do	...
555	Chas. E. Marble	do	A-8	1870?	Bored, 7-inch	84	78	160?	34	Wind	...	do	do	...
556	C. A. Conklin	do	A-8	1873?	Bored, 6-inch	87	70	160	36	do	do	do	do	...
557	H. C. Kelsea	do	A-7	1878	Bored, 7-inch	93	69	200	33	Gas	200.00	\$1,000.00	Irrigation	49
558	Sam Flick	do	A-7	1887	do	93	68	200	34	Wind	200.00	...	Domestic	...
559	P. Commerec	San Antonio	A-7	1899	Bored, 10-inch	92	72	240	33	Gas	*1,000.00	...	Irrigation	† 40
560	O. Dehetre	San Pedro	A-7	1883	Bored, 7-inch	84	74	200	35	Wind	...	125.00	Domestic	...
561	do	do	A-7	1888	do	84	71	200	...	...	...	Not used	...	...
562	T. H. Cresssey	San Antonio	A-7	1886	do	84	...	150	38	Wind	250.00	...	Domestic; irrigation	...
563	Benj. Lee	San Pedro	A-7	1899	Hydraulic, 10-inch	85	260	35	Artesian	425.00	...	Irrigation	...	Small
564	do	do	A-7	1880?	Bored, 6-inch	82	79	100	40	Wind	...	...	Domestic	...
565	M. C. Mathesen	do	A-7	1895	Bored, 2-inch	80	167	32	Artesian	67.00	...	Domestic; stock	Small	...
566	S. W. Imbler	do	A-7	1895	do	79	180	33	do	...	90.00	...	Domestic	...
567	S. J. Hull	do	A-7	1878	Bored, 7-inch	79	79	160	34	do	do	do	do	...
568	D. M. Crum	do	B-7	1885	do	78	209	34	do	do	do	do	do	† 7
569	Mrs. Mary Harrison	do	B-7	1898	Bored 12-inch	78	254	33	do	do	500.00	do	Irrigation	22

570	Isaac Walton.....	do.....	B-7.....	1890?	Bored, 7-inch.....	77	77	225 <sup>1</sup>	33	do.....	do.....	2		
571	Mrs. M. Saastrom.....	do.....	B-7.....	.....	Bored, 2-inch.....	72	72	35	do.....	100.00	Irrigation; do- mestic.....	Small.		
572	J. Dimler.....	do.....	B-7.....	1902	do.....	69	69	253	35	do.....	100.00	do.....	Small.	
573	C. Mealey.....	do.....	B-7.....	1888	Bored, 4-inch.....	75	100	37	Hand.....	100.00	do.....	do.....	Small.	
574	J. Kelso.....	do.....	B-7.....	1902	Bored, 2-inch.....	67	67	237	35	Artesian.....	115.00	do.....	do.....	
575	John Flood.....	do.....	B-7.....	.....	Bored, 4-inch.....	68	68	260	37	Hand.....	do.....	do.....	do.....	
576	L. F. Stockwell.....	San Antonio.....	B-6.....	1878	Bored, 7-inch.....	78	78	525	33	Artesian.....	do.....	Irrigation.....	do.....	
577	do.....	do.....	A-6.....	1896	do.....	79	79	500	do.....	1,200.00	do.....	do.....	do.....	
578	Dr. A. M. McCulloh.....	do.....	B-7.....	1902	Bored, 10-inch.....	79	79	269	33	do.....	500.00	do.....	do.....	
579	do.....	do.....	B-7.....	1890?	Driven, 2-inch.....	73	73	75	do.....	35.00	Not used.....	do.....	do.....	
580	Mrs. Banning.....	do.....	B-6.....	.....	Bored, 7-inch.....	81	81	38	do.....	do.....	Domestic; irriga- tion.....	do.....	do.....	
581	C. H. Sessions.....	do.....	B-6.....	.....	do.....	81	81	150 <sup>2</sup>	do.....	do.....	Stock.....	do.....	do.....	
582	E. Northcote.....	do.....	B-6.....	1892?	Bored, 2-inch.....	86	86	41	do.....	do.....	Domestic.....	do.....	do.....	
583	Mr. Brown.....	do.....	B-6.....	.....	Bored, 4-inch.....	89	89	41	do.....	do.....	do.....	do.....	do.....	
584	E. E. Galbreth.....	do.....	B-5.....	.....	Bored, 7-inch.....	93	93	64	47	do.....	do.....	do.....	do.....	
585	Omri Bullis.....	do.....	B-6.....	1902	Bored, 2-inch.....	91	91	40	51	do.....	42.00	Domestic; irriga- tion.....	do.....	do.....
586	do.....	do.....	B-5.....	1883	Bored, 7-inch.....	93	93	82	47	do.....	80.00	Stock.....	do.....	do.....
587	E. E. Galbreth.....	do.....	B-5.....	.....	do.....	94	94	72	45	do.....	do.....	Domestic.....	do.....	do.....
588	L. Snodgrass.....	do.....	B-5.....	1897	Bored, 8-inch.....	98	98	400 <sup>1</sup>	42	Artesian, gas.....	500.00	Irrigation.....	do.....	do.....
589	F. Hoppe.....	do.....	B-5.....	1883	Bored, 6-inch.....	99	99	85	49	Artesian.....	do.....	Stock.....	do.....	do.....
590	do.....	do.....	B-5.....	1883	Bored, 5-inch.....	105	105	85	47	do.....	do.....	do.....	do.....	2
591	A. Gunn.....	do.....	B-5.....	.....	Bored, 6-inch.....	97	97	96	51	do.....	do.....	Domestic.....	do.....	do.....
592	Sessions & Collins.....	do.....	B-5.....	.....	Bored, 7-inch.....	100	100	100 <sup>1</sup>	do.....	do.....	Stock.....	do.....	do.....	2
593	do.....	do.....	B-5.....	.....	Bored, 5-inch.....	100	100	130 <sup>1</sup>	49	do.....	do.....	Stock.....	do.....	do.....
594	Unknown.....	do.....	B-5.....	1880	Bored, 7-inch.....	103	103	135	40	do.....	300.00	do.....	do.....	do.....
595	Mr. Gilky.....	do.....	C-5.....	1901	do.....	100	100	150	35	do.....	200.00	Irrigation.....	do.....	do.....
596	Robert Tweedy.....	do.....	B-5.....	1896	Bored, 4-inch.....	107	107	90	48	Wind.....	75.00	Domestic.....	do.....	do.....
597	James Tweedy.....	do.....	B-4.....	1902	do.....	116	116	105	40	do.....	81.00	Stock.....	do.....	do.....
598	Mrs. M. Tweedy.....	do.....	C-4.....	1893	Bored, 6-inch.....	116	116	130	38	Artesian, wind.....	150.00	35.00	do.....	do.....
599	Thos. Tweedy.....	do.....	B-4.....	1902	Bored, 4-inch.....	118	118	106	40	Hand.....	81.00	do.....	do.....	do.....
600	Robert Tweedy.....	do.....	C-4.....	1902	do.....	114	114	105	38	Wind.....	81.00	75.00	Domestic; stock.....	do.....
601	J. E. Tweedy.....	do.....	C-4.....	1893	Bored, 7-inch.....	119	118	125	38	Artesian, hand.....	100.00	5.00	Stock; domestic.....	do.....
602	C. Snodgrass.....	do.....	B-4.....	1901	Bored, 10-inch.....	113	110	125	40	Gas.....	200.00	Irrigation.....	do.....	do.....

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface, feet.	Depth of well.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.	Miner's inches. Small.
603	C. Snodgrass.....	San Antonio.....	B-4.....	1880	Bored, 6-inch.....	112	90	42 Artesian.....	\$100.00	Domestic.....	Domestic.	.....	.....
604	do.....	do.....	A-4.....	1883	Bored, 7-inch.....	111	96	do.....	100.00	Irrigation.....	Irrigation.	.....	.....
605	Phil. M. Crockett .....	do.....	B-4.....	1893	Bored, 4-inch.....	120	116	79 Wind.....	.....	Domestic; irrigation.	Domestic; irrigation.	.....	.....
606	do.....	do.....	A-4.....	1893	Bored, 7-inch.....	113	112	200 Artesian.....	.....	Irrigation.....	Irrigation.	.....	.....
607	Mrs. Antoni.....	do.....	B-4.....	1893	do.....	120	119	113 do.....	.....	Domestic; irrigation.	Domestic; irrigation.	.....	.....
608	do.....	do.....	A-4.....	1895	Bored, 10-inch.....	116	115	104 do.....	.....	.....	.....	.....	.....
609	T. A. Tweedy.....	do.....	B-4.....	1888	Bored, 6-inch.....	123	118	140 Wind.....	.....	200.00	Domestic.....	.....	.....
610	C. F. Wood.....	do.....	A-7.....	1891	Bored, 7-inch.....	82	82	238 do.....	.....	.....	Irrigation; domestic.	.....	.....
611	F. L. Walton.....	do.....	A-7.....	1900	Bored, 10-inch.....	85	83	240 do.....	500.00	.....	Irrigation.....	.....	.....
612	Mrs. Botbyear.....	do.....	A-7.....	1890?	Bored, 6-inch.....	85	85	225 Artesian, hand.	.....	.....	Domestic; irrigation.	.....	.....
613	W. C. Walton.....	do.....	A-6.....	1895	Bored, 2-inch.....	87	86	228 Wind.....	110.00	150.00	Domestic.	.....	.....
614	J. E. Lodge.....	do.....	A-6.....	.....	Bored, 7-inch.....	88	87	225? 32	.....	Not used.....	Not used.	.....	.....
615	D. H. Drinkerhoff.....	do.....	A-6.....	1900	do.....	91	90	243 Gas.....	300.00	750.00	Irrigation.....	100	.....
616	Mrs. Mary Banning.....	do.....	A-6.....	1883	do.....	90	90	252 Wind.....	300.00	.....	Domestic.....	.....	.....
617	E. S. Gunby.....	do.....	A-6.....	1888	do.....	94	94	250 Gas.....	500.00	600.00	Irrigation.....	60	.....
618	do.....	do.....	A-6.....	1890?	do.....	93	93	325? 35	.....	Not used.....	Not used.	.....	.....
619	Mrs. Western.....	do.....	A-6.....	1878	do.....	92	92	100 Wind.....	100.00	150.00	Domestic; stock.	.....	.....
620	do.....	do.....	A-6.....	1878	do.....	93	93	500 Wind.....	1,000.00	.....	Stock.....	.....	.....
621	do.....	do.....	A-6.....	1878	do.....	92	92	100 Artesian.....	100.00	.....	Domestic; irrigation.	Small.	.....
622	Wm. Stahl.....	do.....	A-6.....	.....	Bored, 6-inch.....	93	93	250 Wind.....	.....	.....	.....	.....	.....

## WELLS IN DOWNEY QUADRANGLE.

623	W. F. Ruoff.....	do.	A-6.....	1887	Bored, 7-inch.....	94	93	100	48	Hand.....	Domestic.....
624	J. C. Reece.....	do.	A-5.....	1890?	do.....	94	93	22 $\frac{1}{2}$	40	do.....	Domestic; irrigation.
625	M. MacFarland.....	do.	A-5, 6.....	1883	Bored, 4-inch.....	98	93	90	44	Wind.....	Domestic.....
626	Mrs. J. M. Avila.....	do.	A-5.....	1891	Bored, 7-inch.....	96	96	8 $\frac{1}{2}$	45	Artesian.....	Domestic.....
627	Jesus Leon.....	do.	A-5.....	1891	Bored, 6-inch.....	97	97	8 $\frac{1}{2}$	45	do.....	Domestic; irrigation.
628	C. W. Rice.....	do.	A-5.....	1892	Bored, 7-inch.....	97	97	80	46	do.....	Irrigation.
629	Mrs. F. Talamantos.....	do.	A-5.....	1892	do.....	100	95	80	41	Hand.....	2
630	Strong & Nicklinson.....	do.	A-5.....	1897	Bored, 10-inch.....	102	94	72	38	do.....	Domestic.....
631	do.....	do.	A-5.....	1890?	Bored, 4-inch.....	102	103	400	25	Artesian.....	Not used.....
632	do.....	do.	A-5.....	1897	Bored 10-inch.....	100	101	75	49	do.....	Stock.....
633	do.....	do.	A-5.....	1897	Bored, 7-inch.....	100	101	400	25	do.....	Stock.....
634	do.....	do.	A-5.....	1897	do.....	100	101	400	25	do.....	Stock; irrigation.
635	J. G. Belieu.....	do.	A-5.....	1892	do.....	100	100	73	49	do.....	8
636	do.....	do.	A-5.....	1900	do.....	98	98	75	50	do.....	Irrigation.
637	do.....	do.	A-5.....	1898	do.....	99	99	75	49	do.....	17
638	Isaac Walton.....	do.	A-5.....	1899	Bored, 4-inch.....	100	100	75	49	do.....	do.....
639	G. W. Kennedy.....	do.	A-5.....	1888	Bored, 7-inch.....	101	101	80	51	do.....	Small.
640	Mr. Wood.....	do.	A-5.....	1895?	Bored, 4-inch.....	102	102	75	52	do.....	Small.
641	Alfred Belieu.....	do.	A-5.....	1895?	Bored, 7-inch.....	105	105	75	52	do.....	Small.
642	Mr. Isaac Walton.....	do.	A-5.....	1895?	do.....	105	105	75	52	do.....	Small.
643	do.....	do.	A-5.....	1895?	do.....	105	105	80	52	do.....	Small.
644	do.....	do.	A-5.....	1895?	do.....	105	105	80	53	do.....	Small.
645	do.....	do.	A-5.....	1895?	do.....	104	104	80	52	do.....	Small.
646	Mr. Forthman.....	do.	A-5.....	1895?	Bored, 8-inch.....	107	107	80	52	Artesian, wind.....	Small.
647	do.....	do.	A-5.....	1887	Bored, 7-inch.....	109	109	85	52	Artesian.....	Irrigation.
648	do.....	do.	A-4, 5.....	1887	Bored, 9 $\frac{1}{2}$ -inch.....	109	109	85	51	do.....	do.....
649	do.....	do.	A-4, 5.....	1888?	Bored, 7-inch.....	108	108	82	52	do.....	do.....
650	do.....	do.	A-4, 5.....	1890	do.....	107	107	80	48	do.....	do.....
651	Philip Valenzude.....	do.	A-4.....	1887	do.....	110	107	85	50	Hand.....	Domestic.....
652	Tajanta school district.....	do.	A-4.....	1888?	Bored, 7-inch.....	113	113	8 $\frac{1}{2}$	49	Artesian.....	Small.
653	F. M. Anderson.....	do.	A-4.....	1890	do.....	113	113	8 $\frac{1}{2}$	51	Wind.....	do.....
654	do.....	do.	A-4.....	1891	do.....	113	110	450	33	do.....	Irrigation.
655	do.....	do.	A-4.....	1890	do.....	116	114	8 $\frac{1}{2}$	45	do.....	do.....

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Method of lift.	Cost of water.	Quantity of water. Miner's inches.
656	Thos. Duggan	San Antonio	A-4	1890?	Bored, 4-inch.....	115 115 84 50	.....	Domestic; irrigation.
657	C. D. Barkley	do	A-5	do	.....	111 110 80 44	.....	Domestic.....
658	Pacific Electric R. R. Co.	do	A-4	.....	Bored, 7-inch.....	112 112 85 51	Wind, electricity.	.....
659	Geo. J. Ley	do	A-4	1902	Hydraulic, 2-inch	113 112 90 51	Hand.	\$49.00
660	do	do	A-4	1883	Bored, 5-inch.....	115 113 74 51	do	do
661	do	do	A-4	1883	Bored, 6-inch.....	115 113 74	do	Stock; irrigation
662	Mrs. Lena Diller	do	A-5	1897	Bored, 7-inch.....	109 109 72 51	Gas.....	Irrigation.....
663	Mr. Mackley	do	A-4, 5	1895?	Bored, 5-inch.....	112 111 85 51	Hand.	Domestic.....
664	F. E. Ramsaur	do	A-5	1887	Bored, 7-inch.....	106 106 72 48	Artesian	Stock.
665	do	do	A-5	1900	Bored, 10-inch.....	106 106 69 43	do	.....
666	do	do	A-4	1888?	Bored, 7-inch.....	117 115 78 51	Hand.	Domestic.....
667	W. F. Ruoff	do	A-4	1887	do	118 116 84 47	Wind.	\$75.00 Irrigation; domestic.
668	do	do	A-4	1893	do	117 117 72 51	Artesian	do
669	Chas. Lash	do	A-4	1888	do	116 114 150 51	Wind.	85.00 Irrigation; do
670	do	do	A-4	1882	do	115 114 86 50	do	100.00 Not used.
671	David Elcoat	do	A-4	1896	do	122 117 90 49	do	do
672	Jacob Bossard	do	A-4	1888	do	127 121 160	do	Irrigation.
673	Mrs. E. Crane	do	A-4	1889	Bored, 4-inch.....	127 120 105	Hand.	200.00 Not used.
674	Mr. Stege	do	A-4	.....	Bored, 7-inch.....	125 119 90 49	do	Domestic.....
675	J. F. Donohue	do	A-4	1884	do	124 118 100 49	Wind.	100.00 do
676	S. H. Minor	do	A-4	1890	Bored, 3-inch.....	125 120 95 46	do	50.00 Irrigation; domestic.



## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface, feet.	Elevation of water, feet.	Depth of well.	Soil's per 100,000.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water, Miner's inches.
709	Z. L. Parmlee	San Antonio . . .	A-2	Bored, 7-inch . . .	161	133	75	67	Wind. . . . .	\$200.00	Domestic. . . . .		
710	I. H. Bryson	do . . . . .	A-2	do . . . . .	167	130	92	46	do . . . . .	200.00	do . . . . .		
711	Z. S. Spalding	do . . . . .	A-2	Bored, 10-inch . . .	162	131	101	91	do . . . . .	200.00	do . . . . .		
712	Joe Dutcher	do . . . . .	A-2	Bored, 2-inch . . .	165	132?	73	85	do . . . . .	40.00	do . . . . .		
713	Mr. C. Dutcher	do . . . . .	A-2	Bored, 7-inch . . .	167	132	100	75	do . . . . .	120.00	Stock . . . . .		
714	do . . . . .	do . . . . .	A-2	do . . . . .	168	do . . . . .	60	70	do . . . . .	60.00	Stock . . . . .		
715	Chas. Porter	do . . . . .	A-2	do . . . . .	169	136	61	78	Hand . . . . .	60.00	Domestic . . . . .		
716	Ed Trapp	do . . . . .	A-2	1901 do . . . . .	170	do . . . . .	73	68	Wind . . . . .	70.00	do . . . . .		
717	F. Ahrens	do . . . . .	A-2	1902 Bored, 1½-inch . . .	173	133	60	do . . . . .	do . . . . .	180.00	do . . . . .		
718	do . . . . .	do . . . . .	A-1	1900 Driven, 2-inch . . .	175	do . . . . .	63	66	Hand . . . . .	20.00	do . . . . .		
719	Nadeau	Town Site Los Angeles city .	A-1	Bored, 7-inch . . .	179	do . . . . .	101	49	Wind . . . . .	do . . . . .	do . . . . .		
720	Los Angeles Land Co.	do . . . . .	B-7	do . . . . .	185	136	100?	51	Hand . . . . .	do . . . . .	do . . . . .		
721	Mrs. Thompson	do . . . . .	A-1	1890? do . . . . .	175	do . . . . .	70	62	Hand . . . . .	do . . . . .	do . . . . .		
722	H. Cornelson	do . . . . .	A-1	1900 Driven, 2-inch . . .	181	151?	70	62	Hand . . . . .	40.00	do . . . . .		
723	Andrew Daneri	do . . . . .	A-1	1889 Bored, 7-inch . . .	188	143	73	56	Wind . . . . .	75.00	200.00	do . . . . .	
724	J. Gibbs	do . . . . .	A-1	1891 do . . . . .	190	142	63	52	Hand . . . . .	90.00	do . . . . .		
725	R. S. Smith	do . . . . .	A-1	Bored, 6-inch . . .	188	140	63	53	Wind . . . . .	75.00	225.00	do . . . . .	
726	I. Gibbs	do . . . . .	A-1	1881 Bored, 7-inch . . .	191	142?	65	53	do . . . . .	80.00	250.00	do . . . . .	
727	J. T. Gitchell	do . . . . .	A-1	1892 do . . . . .	194	140	63	52	do . . . . .	85.00	145.00	do . . . . .	
728	P. W. Sams	do . . . . .	A-1	1888 Bored, 6-inch . . .	196	137	63	53	Wind, horse-power.	80.00	200.00	do . . . . .	
729	J. W. Simpson	do . . . . .	A-1	1902 Bored, 7-inch . . .	195	130	85	52	Wind . . . . .	200.00	200.00	Domestic; irrigation.	

730	H. A. Moore.....	do.....	A-1.....	1884	do.....	192	135	68	52	do.....	25.00	125.00
731	John W. Mills.....	do.....	A-1.....	1900	do.....	193	...do.....	70	50	Gas.....	25.00	Domestic; irrigation.
732	Mrs. M. J. Brewster.....	do.....	A-1.....	1899	do.....	196	154	68	52	Hand.....	75.00	Domestic.....
733	Mrs. J. L. Adams.....	do.....	A-1.....	do.....	do.....	196	...do.....	53	Wind.....	150.00	do.....	
734	S. S. Harper.....	do.....	A-1.....	1903	do.....	191	136	91	48	Gas.....	110.00	150.00
735	Pacific Electric R. R. Co.	do.....	A-1.....	1893	do.....	194	136	90	52	Wind.....	110.00	200.00
736	Mr. Carasosa.....	do.....	A-1.....	do.....	Bored, 3-inch.....	189	...do.....	51	do.....	do.....	do.....	do.....
737	Chas. M. More.....	do.....	A-1.....	1899	Bored, 9-inch.....	193	141	192	47	Compressed air.	700.00	Not used.....
738	Moore Bros.....	do.....	B-1.....	1900	Bored, 12-inch.....	193	138	226	33	do.....	700.00	Irrigation.....
739	do.....	San Antonio.....	B-1.....	1901	do.....	193	138	226	33	do.....	700.00	do.....
740	Mr. Anderson.....	Los Angeles city.....	A-1.....	1898?	Bored, 7-inch.....	189	136	75	46	Wind.....	75.00	150.00
741	Moore Bros.....	San Antonio.....	B-1.....	1902	do.....	186	135	74	41	Hand.....	75.00	Domestic.....
742	Maria Alvaris.....	do.....	B-1.....	1891	do.....	192	137	62	43	do.....	80.00	do.....
743	E. O. McClure.....	Los Angeles city.....	A-1.....	1898	Bored, 10-inch.....	192	143	440	41	Wind.....	960.00	150.00
744	John Moore.....	do.....	A-1.....	1901	Bored, 7-inch.....	191	140	78	44	Gas.....	200.00	Stock; domestic.
745	J. Furlong.....	do.....	A-1.....	1900	Bored, 6-inch.....	188	133	60	41	Hand.....	200.00	315.00
746	do.....	do.....	A-1.....	1899	Bored, 7-inch.....	183	133	70	45	do.....	75.00	Not used.....
747	Furlong Bros.....	do.....	A-1.....	1901	do.....	186	126?	63	45	Wind.....	80.00	85.00
748	E. P. Merritt.....	do.....	A-1.....	1883?	do.....	186	134	70	40	do.....	80.00	Domestic.....
749	J. G. White.....	do.....	A-1.....	1883	do.....	182	132?	70	45	do.....	75.00	200.00
750	N. J. White.....	do.....	A-1.....	1902	do.....	182	133	62	42	Hand, gas.....	120.00	175.00
751	Pacific Electric R. R. Co.	do.....	A-1.....	1892	do.....	182	133	65	42	Wind.....	75.00	Domestic; irrigation.
752	E. M. Landon.....	San Antonio.....	A-2.....	1888?	do.....	179	...do.....	93	do.....	do.....	100.00	do.....
753	Mr. Peralta.....	do.....	A-1.....	1901	do.....	180	135	64	41	Hand.....	80.00	do.....
754	Caytano C. Quijada.....	do.....	A-1.....	1901	do.....	180	135	74	42	Wind.....	100.00	do.....
755	Nellie E. Prescott.....	do.....	A-2.....	1901	do.....	178	135	83	40	do.....	85.00	235.00
756	Mrs. D. L. Page.....	do.....	A-1.....	1900	do.....	179	133	85	36	do.....	do.....	Domestic; irrigation.
757	John T. Holly.....	do.....	A-2.....	1893	Bored, 4-inch.....	178	...do.....	86	41	Hand.....	100.00	Domestic.....
758	Mr. Reed.....	do.....	A-2.....	1895	Bored, 7-inch.....	178	...do.....	73?	40	do.....	80.00	do.....
759	J. C. Higgins.....	do.....	A-2.....	1899	do.....	177	...do.....	80	43	Wind.....	100.00	Factory.....
760	Amer. Agr. Chem. Co.....	do.....	A-2.....	1898	Bored, 10-inch.....	176	134	90	35	Steam.....	100.00	do.....
761	E. G. Underher.....	do.....	A-2.....	1883	Bored, 7-inch.....	173	133	85?	53	Hand.....	do.....	Domestic.....

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface face.	Elevation of water.	Depth of well.	Method of lift.	Solids per 100,000.	Cost of machinery.	Use of water.	Quantity of water.	Miner's inches.
762	John B. Morrison	San Antonio	A-2	1886	Bored, 7-inch	173	89	40	Wind	\$75.00	Domestic	do	do	do
763	Mrs. E. S. Morrison	do	A-2	1884	do	171	134	88	do	80.00	\$125.00	do	do	do
764	Mrs. Parls	do	A-2	1897	do	169	134	90	do	90.00	do	do	do	do
765	Geo. Jones	do	A-2	1884	do	166	131	120	38	do	125.00	150.00	do	do
766	John Booth	do	A-2	1891	do	165	130	60?	40	do	do	do	do	do
767	Mrs. O. J. Nichols	do	A-2	1887	do	166	132	60	48	Hand	70.00	2.50	do	do
768	Miss B. Morrison	do	A-2	1884	do	165	132	109	42	Wind	140.00	do	do	do
769	Mr. Ingalls	do	A-2	1882?	do	162	127	63	42	Hand	do	do	do	do
770	M. J. Innes	do	A-2	1900	do	159	128	100	41	Wind	100.00	180.00	Domestic; irrigation	do
771	Mrs. Marie Kramer	do	A-2	1890?	do	158	128	83	42	do	do	do	Domestic	do
772	H. B. Blakeley	do	A-2	1883	Bored, 4-inch	159	129	69	42	do	*315.00	180.00	Domestic; irrigation	do
773	H. M. Vance	do	A-2	1883	Bored, 7-inch	158	128	69	47	do	65.00	180.00	Irrigation	do
774	do	do	A-2	1897	do	159	128	68	46	do	70.00	175.00	Irrigation	do
775	Methodist Episcopal parsonage.	do	A-2	1885	do	159	128	70	105	Hand	do	do	Domestic	do
776	J. F. Ahlstrom	do	A-2	1888	do	160	127	70?	53	Wind	do	do	do	do
777	Mrs. Blakesley	do	A-2	do	do	157	128	75?	Hand	do	do	do	do	do
778	Florence school district.	do	A-2	1883	do	157	127	75	53	Wind	75.00	200.00	do	do
779	F. E. Cleland	do	A-2	1883	do	157	127	78	56	do	80.00	200.00	Domestic; irrigation	do
780	Alfred Lane	do	A-2	1893	do	157	127	84	47	Gas	do	do	Domestic	do
781	Mrs. Clark	do	A-2	1890	do	157	127	85?	42	Wind	150.00	Domestic	do	do

782	Oliver Foster.....	do.....	A-2.....	1888?	do.....	80	42	do.....	80.00	200.00	do.....
783	Mrs. B. A. Clark.....	do.....	B-2.....	1903	do.....	160	129	95	95.00	70.00	Domestic; irrigation.
784	J. Cosgrove.....	do.....	A-2.....	1902	Bored, 5-inch.....	157	122?	76	43	Gas.....	Domestic.....
785	Mr. Bixby.....	do.....	A-3.....	1888?	Bored, 7-inch.....	153	128	52	52	Wind.....	do.....
786	Edward Alvares.....	do.....	A-3.....	1902	do.....	149	127	85	do.....	85.00	70.00
787	E. Reiman.....	do.....	A-3.....	.....	Driven, 2-inch.....	148	126	80	do.....	do.....	do.....
788	R. Nadeau.....	do.....	A-2.....	1900	Bored, 10-inch.....	155	124	87	do.....	310.00	1,500.00 Irrigation.
789	do.....	do.....	A-2.....	1883	Bored, 7-inch.....	155	116	80	49	Wind.....	85.00
790	Mrs. R. B. Durfee.....	do.....	A-3.....	1885	do.....	147	129	500	33	do.....	do.....
791	Mrs. A. A. Lipsey.....	do.....	A-3.....	1894	Bored, 2-inch.....	144	128	92	47	do.....	45.00
792	Mrs. Cox.....	do.....	A-2.....	.....	do.....	145	126	60	65	Hand.....	30.00
793	W. S. Barlowe.....	do.....	B-3.....	1902	Bored, 5-inch.....	143	126	30	do.....	do.....	Stock.....
794	Mrs. F. Winters.....	do.....	B-3.....	1901	Bored, 7-inch.....	143	129	81	49	do.....	do.....
795	A. Huston.....	do.....	B-3.....	1902	Bored, 5-inch.....	143	130	25	70	do.....	do.....
796	J. Marsh.....	do.....	B-3.....	1899	Bored, 2-inch.....	144	144	75	48	do.....	do.....
797	S. C. Darby.....	do.....	B-3.....	1891	Driven, 2-inch.....	142	142	90	52	do.....	45.00
798	F. M. Fulston.....	do.....	B-2.....	1900	Bored, 7-inch.....	167	90	90	39	Wind.....	200.00
799	W. M. Patterson.....	do.....	A, B-2.....	1897	do.....	168	133	90	39	do.....	100.00
800	Michael Cudahy.....	do.....	B-2.....	1899	Bored, 12-inch.....	156	122	391	35	Compressed air.	2,000.00 Irrigation.
801	do.....	do.....	B-2.....	1899	do.....	156	122	407	35	do.....	+60
802	do.....	do.....	B-2.....	1899	do.....	156	122	431	42	do.....	+60
803	do.....	do.....	B-2.....	1900	do.....	155	121	376	40	do.....	+60
804	do.....	do.....	B-2.....	1900	do.....	155	121	116	do.....	1,000.00	+60
805	do.....	do.....	B-2.....	1900	do.....	155	121	379	40	do.....	+60
806	do.....	do.....	B-2.....	1900	do.....	155	121	376	42	do.....	+60
807	do.....	do.....	B-2.....	1900	do.....	155	121	131	80	Wind.....	2,000.00 do.....
808	do.....	do.....	B, C-4.....	.....	Bored, 4-inch.....	131	117	165	do.....	231.00	do.....
809	do.....	do.....	C-3.....	1901	Bored, 8-inch.....	132	117	114	do.....	do.....	Stock.....
810	do.....	do.....	D-4.....	1883?	do.....	124	114	150	35	do.....	Domestic..
811	do.....	do.....	D-3.....	1883	Bored, 7-inch.....	131	120	60	36	do.....	Stock.....
812	do.....	do.....	D-3, 4.....	1883	do.....	123	114	90	36	do.....	Domestic..
813	do.....	do.....	D-3.....	1883	do.....	129	122	60	31	do.....	Stock.....
814	do.....	do.....	E-3.....	.....	do.....	128	80	32	do.....	do.....	do.....
815	do.....	do.....	C-3.....	.....	do.....	159	130	80	38	do.....	Domestic..
816	D. Cunningham.....	do.....	B-2.....	.....	do.....	158	129	75	35	do.....	75.00

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.		Elevation of water.	Depth of well.	Solids per 100,000.	Method of lift.	Use of water.		Cost of machinery.	Quantity of water.	Miner's inches.
						Feet.	Feet.					Compressed air.	\$250.00	Boilers.		
817	Michael Cudahy	San Antonio	B-2	1899	Bored.	115	38	115	35	do	500.00	do	500.00	Irrigation.	50	
818	D. Cunningham	do	B-2	1902	Bored, 12-inch.	160	133	190	35	Hand	72	do	do	do	\$2.50	Domestic.
819	H. W. Benson	do	C-2	1884	Bored, 2-inch.	156	do	do	do	do	do	do	do	do	do	
820	A. F. Fishing	do	B-2	1903	Bored, 7-inch.	175	130	89	do	do	108.00	do	do	do	do	
821	Mr. Nutt	do	B-2	1897	Bored, 11-inch.	170	130	280	do	do	do	do	do	do	do	
822	G. H. Stevens	do	B-2	1902	Bored, 7-inch.	177	132	85	33	Wind	90.00	do	do	do	250.00	Domestic.
823	E. V. Baker	do	B-1	do	do	do	do	do	do	do	do	do	do	do	do	do
824	Mrs. Baker	do	C-1	1902	do	173	150	60	53	Hand	60.00	do	do	do	do	do
825	G. W. Brookins	do	C-1	1902	do	177	147	60	73	Wind	60.00	do	do	do	150.00	Domestic.
826	Marian Dodson	do	B-1	1899	do	175	145?	95	52	Hand	100.00	do	do	do	do	do
827	Mr. Buchanan	do	B-1	1900	Bored, 4-inch.	176	do	120	do	Wind	do	do	do	do	do	do
828	W. W. Shea	do	B, C-1	do	Bored, 7-inch.	182	133	do	do	do	do	do	do	do	do	do
829	Alfred Lennon	do	B-1	1894	do	182	141	77	54	do	do	do	75.00	do	200.00	do
830	J. H. Chapman	do	B-1	1895	do	178	128	115	41	do	do	do	115.00	do	do	do
831	J. W. Batcheller	do	C-1	1883	do	184	138	95	37	do	do	do	100.00	do	do	do
832	San Antonio school district.	do	C-1	1899	do	do	do	225	35	Hand	do	do	do	do	do	do
833	F. P. Walker	do	C-1	1878	do	185	139	90	do	Wind	90.00	do	do	do	do	
834	E. J. Polklinhorn	do	C-1	1902	do	181	139	105	39	do	110.00	do	do	do	200.00	Domestic; stock.
835	Mr. Russell	do	C-1	1880	do	179	139	80	do	do	do	do	do	do	do	
836	Wm. Angel	do	C-1	1901	do	180	140	74	39	Hand	do	do	do	do	do	
837	W. J. Barr	do	C-1	1902	do	183	143?	108	45	do	160.00	do	do	do	75.00	Stock.
838	J. F. Francis	do	A-11	do	Dug, 3 by 3 foot.	50	41	14	do	Wind	do	do	do	do	do	do
839	Jesus Cruz	do	B-11	1903	Bored, 10-inch.	49	42	143	31	do	do	do	do	do	do	do

840	Mr. Cheriotto.....	do.....	B-12.....	1903	...do.....	26	160	Gas?.....	300.00	Irrigation.....
841	Mr. Shurota.....	do.....	B-12.....	1883?	Bored, 6-inch.....	33	26	150?	45	Domestic.....
842	M. Mindrup.....	do.....	B-11.....	1900	Bored, 2-inch.....	44	101	...do.....	50.00	Not used.....
843	G. Delamo.....	do.....	C-11.....	1899	Bored, 12-inch.....	43	43	940	25	Irrigation.....
844	do.....	do.....	B-11.....	1900	Bored, 2-inch.....	43	33?	94	37	Domestic.....
845	R. M. Bobst.....	do.....	B-11.....	1901	do.....	41	106	51	Hand.....	do.....
846	J. Malcom.....	do.....	B-11.....	.....	Bored, 7-inch.....	42	34	185	37	do.....
847	Mrs. Carson.....	do.....	A-12.....	.....	Driven, 2-inch.....	30	24	95	37	do.....
848	S. Todd.....	do.....	A-13.....	.....	Bored, 7-inch.....	25	20	275	37	do.....
849	Mr. Bangel.....	do.....	B-13.....	1899	Driven, 2-inch.....	31	26	96	...do.....	do.....
850	Mrs. Chas. Guyer.....	do.....	B-13.....	1898	do.....	32	26	80	41	Domestic; stock.....
851	Mrs. Carson.....	do.....	C-12.....	1898	Bored, 10-inch.....	32	27	140	35	Domestic.....
852	do.....	do.....	C-12.....	1898	do.....	33	27	140	39	Not used.....
853	Miss Y. Dominguez.....	do.....	B, C-12.....	1898	do.....	35	26	140	37	do.....
854	J. F. Francis.....	do.....	C-11, 12.....	1900	Driven, 2-inch.....	35	26	80	38	Domestic.....
855	G. Dominguez.....	do.....	B-11.....	1903	Bored, 2-inch.....	32	25	106	40	do.....
856	J. F. Francis.....	do.....	C-11.....	1898	Bored, 10-inch.....	36	28	14C	...do.....	Not used.....
857	Schoolhouse.....	do.....	B-12.....	1895	Bored, 2-inch.....	32	24	90	...do.....	Domestic.....
858	O. E. Elftman.....	do.....	B-12.....	1902	Bored, 12-inch.....	33	25	53?	37	Irrigation.....
859	do.....	do.....	B-12.....	1895	Bored, 10-inch.....	33	25	14?	41	Domestic.....
860	Geo. Silvera.....	do.....	B-11, 12.....	1902	Bored, 2-inch.....	32	25	106	47	do.....
861	O. E. Elftman.....	do.....	B-12.....	1902	Bored, 12-inch.....	31	24	150	39	Irrigation.....
862	do.....	do.....	B-12.....	1895	Bored, 2-inch.....	31	24	100	40	Stock.....
863	M. E. Tolle.....	do.....	C-13.....	1890	Bored, 4-inch.....	25	25	86	44	Domestic.....
864	G. H. Bixby.....	Los Cerritos.....	C-13.....	1901	Bored, 7-inch.....	50	13	400	27	do.....
865	J. M. Carson.....	San Pedro.....	C-12.....	1900	Bored, 2-inch.....	28	19	13?	...do.....	do.....
866	do.....	do.....	B-13.....	1897	do.....	25	140	37	Wind.....	150.00
867	do.....	do.....	B-13.....	1900	Bored, 10-inch.....	25	18	225	35	Gas.....
868	L. E. Torrey.....	do.....	B-13.....	1901	Bored, 2-inch.....	25	15?	140	37	Wind.....
869	S. D. Wilson.....	do.....	B-13.....	1899	do.....	25	19	100	...do.....	50.00
870	Milton Brown.....	do.....	C-13.....	1888	Dug, 3 by 3 foot.....	22?	16	18	73	Stock.....
871	W. True Molton.....	do.....	C-13.....	.....	Bored, 7-inch.....	24	16	103	57	Irrigation.....
872	Mr. Mayberry.....	do.....	C-13.....	.....	do.....	23	16	100	59	Domestic.....
873	A. J. Green.....	do.....	C-13, 14.....	1883	do.....	23	16	90	...do.....	do.....
874	Mr. Kineaid.....	do.....	C-13.....	1883?	do.....	23	16	110	200+	do.....

## Wells in the Downey quadrangle—Continued.

Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface, feet.	Elevation of water, feet.	Depth of well.	Solids per 100,000.	Method of lift.	Cost of well.	Cost of machinery.	Quantity of water.
875 A. Allison.....	San Pedro.....	C-13.....	1888	Dug, 3 by 3 foot.....	22	17	8	200+	Hand.....	Domestic.....	.....	Miner's inches.
876 Mrs. Francis MacDonald.	do.....	C-14.....	1885	do.....	11	do	do	do	do.....	do.....	do	do.....
877 B. A. Mathewson.....	do.....	D-14.....	1902	do.....	9	200+	do	do	do.....	do.....	do	do.....
878 F. J. Watson.....	do.....	B-14.....	1897	Bored, 4-inch.....	25	20	340	49	Wind.....	Stock.....	do	do.....
879 do.....	do.....	A-13.....	1900	Bored, 2-inch.....	23	do	459	20	Artesian.....	do	do	do.....
880 do.....	do.....	A-13.....	1894	Bored, 7-inch.....	25	3	154	29	Wind.....	250.00	do	Domestic; irrigation.
881 San Pedro Lumber Co.....	do.....	A-16.....	1903	Dug, 3 by 3 foot.....	23	12	15	55	do.....	Sawmill.....	do	do.....
882 San Pedro Salt Co.....	do.....	B-16.....	1902	Bored, 7-inch.....	4	7	158	56	Artesian.....	Boiler.....	200.00	do.....
883 G. H. Bixby.....	do.....	B-15.....	do.....	do.....	15	12	86	37	Wind.....	Stock; domestic.....	do	do.....
884 L. Byrnes.....	do.....	B-15.....	1893	Bored, 4-inch.....	11	10	98	37	Artesian, wind.....	Stock.....	do	do.....
885 John Ena.....	do.....	B-15.....	1898	Bored, 12-inch.....	11	13	784	32	Artesian.....	do.....	200.00	do.....
886 John Scott.....	do.....	B-15.....	1890	Bored, 7-inch.....	11	10	180	do	do.....	do.....	do	do.....
887 John Ena.....	do.....	C-15.....	1885?	do.....	15	14	do	39	do.....	do.....	do	do.....
888 Geo. Cordell.....	do.....	C-15.....	1890	do.....	11	10	38	Hand.....	100.00	do.....	do.....	Domestic.....
889 Geo. Loper.....	do.....	B-15.....	1901	Bored, 4-inch.....	14	100	38	do	75.00	do.....	do	do.....
890 Ira Roberts.....	do.....	B-14.....	do.....	Driven, 2-inch.....	15	12	85	do	45.00	do.....	do	do.....
891 W. Martin.....	do.....	B-14.....	1888	Bored, 4-inch.....	16	13	100	38	Wind.....	85.00	do	do.....
892 F. W. Gilson.....	do.....	B-14.....	1888?	Bored, 7-inch.....	16	11	100	31	Hand.....	100.00	do	do.....
893 W. H. Westover.....	do.....	B-14.....	1888	Bored, 6-inch.....	15	11	100	do	45.00	\$2.50	do	do.....
894 E. Loper.....	do.....	B-14.....	1893	Bored, 4-inch.....	17	12	100	37	do	do	do	do.....
895 M. Pike.....	do.....	B-14.....	1888?	Bored, 7-inch.....	18	12	95	35	do	75.00	135.00	do.....
896 Fred Maskow.....	do.....	B-14.....	1896	Bored, 2-inch.....	18	12	96	37	Hand.....	95.00	do	do.....
										35.00	do	do.....

## WELLS IN DOWNEY QUADRANGLE.

897	Mrs. E. M. Wiley .....	do .....	B-14.....	1897	Bored, 4-inch .....	18	12	85	37	Wind .....	70.00	150.00	do .....
898	P. J. Watson.....	do .....	A-14.....	1895	Dug, 4 by 4 foot .....	25	12	21	70	do .....	do .....	do .....	do .....
899	Mrs. Lily Watson.....	do .....	A-14.....	.....	Bored, 7-inch .....	28	9	162	30	do .....	do .....	do .....	do .....
900	Mrs. Emery.....	do .....	B-14.....	1896	Bored, 2-inch .....	18	11	85	do .....	Hand .....	do .....	do .....	do .....
901	Mrs. Guyer.....	do .....	B-12.....	1899	Bored, 10-inch .....	31	24	149	do .....	Gas .....	200.00	do .....	Irrigation.....
902	G. N. Wines .....	do .....	B-13.....	.....	Bored, 2-inch .....	20	19?	170	33	Wind .....	do .....	do .....	Domestic.....
903	R. H. Martin .....	do .....	B, C-14 .....	1892	Bored, 6-inch .....	17	11	116	do .....	do .....	115.00	do .....	do .....
904	Cerritos school district	do .....	C-14.....	1893	Bored, 2-inch .....	17	11	90	do .....	Hand .....	45.00	do .....	do .....
905	S. O. Davis .....	do .....	C-14.....	1890	Bored, 6-inch .....	17	12	120	62	Wind .....	do .....	do .....	do .....
906	do .....	do .....	C-14.....	1897	do .....	14	9	110	do .....	do .....	do .....	do .....	Not used.....
907	Mrs. Graydon .....	do .....	C-14.....	1891	Bored, 4-inch .....	14	9	100	do .....	Wind .....	do .....	do .....	Domestic .....
908	John Leuer .....	do .....	C-15.....	1895	do .....	13	12	92	do .....	Hand .....	do .....	do .....	do .....
909	E. S. Rosenberg .....	do .....	C-15.....	1895	Bored, 6-inch .....	15	11	105	39	Wind .....	do .....	do .....	Domestic; irrigation.....
910	C. A. Westgate .....	do .....	C-14.....	1895	Bored, 7-inch .....	14	12	100	60	do .....	do .....	do .....	Domestic .....
911	Henry Schief .....	do .....	C-14.....	1898	Bored, 2-inch .....	13	11	94	60	Hand .....	35.00	do .....	do .....
912	Geo. Cordell .....	do .....	C-15.....	1898	Bored, 7-inch .....	13	12	125	do .....	Wind .....	do .....	do .....	do .....
913	Mrs. B. F. Browers .....	Los Cerritos	D-15.....	.....	.....	23	11	70	200+	do .....	do .....	do .....	do .....
914	Frank Pit .....	do .....	C-15.....	.....	Bored, 2-inch .....	20	.....	80?	70	do .....	do .....	do .....	do .....
915	H. F. Mallernee .....	do .....	E-10.....	1897	do .....	53	51	317	do .....	do .....	125.00	do .....	Not used.....
916	Geo. H. Bixby .....	do .....	E-11.....	1898	Bored, 10-inch .....	51	51	672	20	Artesian .....	do .....	do .....	Irrigation.....
917	do .....	do .....	E-11.....	.....	Bored, 2-inch .....	52	52	350?	20	do .....	300.00	do .....	Domestic; stock .....
918	do .....	do .....	E-11.....	.....	Bored, 7-inch .....	52	52	350	23	do .....	do .....	do .....	Stock .....
919	do .....	do .....	D-11.....	1897	Bored, 10-inch .....	48	.....	500+	23	do .....	do .....	do .....	do .....
920	do .....	do .....	D-11.....	.....	Bored, 7-inch .....	45	45	310?	23	do .....	do .....	do .....	do .....
921	do .....	do .....	D-11.....	.....	do .....	45	.....	350?	25	do .....	do .....	do .....	Irrigation .....
922	do .....	do .....	D-12.....	1899	do .....	80	48	350?	22	Wind .....	do .....	do .....	Domestic .....
923	do .....	do .....	D-12.....	1898	Bored, 10-inch .....	105	50	500	22	Gas .....	do .....	do .....	do .....
924	do .....	do .....	D-13.....	.....	Bored, 4-inch .....	100	.....	400?	22	Wind .....	do .....	do .....	do .....
925	R. F. De Garmo .....	do .....	D-15.....	1890?	Dug, 3 by 3 foot .....	25	11	21	161	do .....	do .....	do .....	do .....
926	G. W. Olsen .....	do .....	D-14.....	1903	do .....	24	11	15	172	Hand .....	do .....	1,000.00	do .....
927	R. W. Patterson .....	do .....	D-14.....	1894	Bored, 7-inch .....	59	4	425?	37	Wind .....	do .....	do .....	Domestic .....
928	A. M. Neece .....	do .....	D-14.....	1891	do .....	50	10	240	39	do .....	500.00	do .....	Domestic .....
929	J. Andrews .....	do .....	D-14.....	1890	do .....	45	31	120	80	do .....	*493.00	do .....	Domestic; irrigation .....

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
930	J. B. Rain.	Los Cerritos.	E-14	1888	Bored, 4-inch	73	21	264	Wind	Not used	Domestic; irrigation.	Irrigation	do
931	Mr. Wardlowe	do	E-14	do	Bored, 7-inch	63	21	36	do	do	do	Domestic	do
932	Z. T. Nelson	do	E-14	do	do	100	9	155	do	do	do	Domestic	do
933	G. A. Lindsay	do	D-16	1887	Bored, 4-inch	37	12	72	27	do	do	Irrigation	do
934	Seaside Water Co.	do	E-12	do	Bored, 14-inch	61	61	730	21	Artesian	do	Domestic	do
935	do	do	E-12	do	Bored, 14, 12-inch	61	61	700	do	do	do	Domestic	do
936	do	do	E-12	1900	Bored, 12-inch	61	61	767	do	do	do	Domestic	do
937	do	do	E-12	do	Bored, 10-inch	71	71	400	19	do	do	Not used	do
938	do	do	E-12	do	Bored, 7-inch	61	61	400	do	do	do	Irrigation	do
939	do	do	E-13	1901	Bored, 14-inch	62	62	684	19	Artesian	do	Domestic	\$100
940	do	do	E-13	1889	Bored, 8-inch	57	57	707	19	do	do	do	do
941	Geo. H. Bixby	do	E-13	1888	Bored, 7-inch	62	62	250	21	do	do	Not used	do
942	do	do	E-13	1902	Bored, 2-inch	62	62	450	22	do	do	Domestic	do
943	Seaside Water Co.	do	E-13	do	do	60	60	350	21	do	do	Not used	do
944	J. Ross Clark	do	E-12	1900	Bored, 12-inch	61	61	838	23	do	do	Irrigation	\$2,500.00
945	W. A. & J. R. Clark	do	E-12	1893	Bored, 10-inch	69	69	350	do	do	do	Domestic	do
946	do	do	E-12	1893	Bored, 8-inch	69	69	350	Artesian	do	do	Stock	do
947	do	do	F-12	1901	Bored, 4-inch	57	57	400	17?	do	do	Domestic	12
948	do	do	F-12	1901	do	52	52	400	do	do	do	Stock	17
949	do	do	F-12	1901	do	60	60	400	17?	do	do	Stock	12
950	Seaside Water Co.	do	E-13	do	Bored, 2-inch	53	53	do	do	do	do	do	3
951	do	do	E-13	do	do	53	53	do	do	do	do	Not used	do
952	G. R. Wilson	do	E-10	1899	do	58	58	420	do	do	do	Irrigation; stock	do

## WELLS IN DOWNEY QUADRANGLE.

953	do	do	do	1899	do	25	do	250.00	Domestic	...
954	W. H. McKelvey	do	do	1899	do	23	do	Stock	Stock	\$3
955	Geo. H. Bixby	do	do	1902	do	22	do	Not used	Not used	...
956	D. B. Gemmill	do	do	1900	Bored, 7-inch	35	Gas	Irrigation	Irrigation	...
957	do	do	do	1900	Bored, 2-inch	25	Hand	40.00	Domestic	...
958	G. F. Sparks	do	do	1876?	Bored, 4-inch	25	Artesian	400?	Domestic; stock	Domestic; stock
959	J. R. Clark	do	do	1902	do	do	do	225.00	Irrigation	Irrigation
960	do	do	do	1897	Bored, 2-inch	23	do	200.00	Domestic	Domestic
961	J. Ross Clark	do	do	1902	Hydraulic, 4-inch	23	do	225.00	Irrigation	Irrigation
962	do	do	do	1902	Bored, 4-inch	23	do	do	do	27
963	do	do	do	1902	do	23	do	225.00	do	...
964	do	do	do	1900	Bored, 10-inch	22	do	1,800.00	Domestic	Domestic
965	do	do	do	1-1	Bored, 2-inch	23	do	225.00	Small	Small
966	do	do	do	1-12	1895	do	do	do	do	...
967	do	do	do	1-12	1890?	do	do	60.00	do	...
968	C. W. Coseboom	do	do	E-14	1885	Bored, 7-inch	25	Wind	\$70.00	do
969	Citizens' Water, Light and Power Co.	Los Alamitos	do	E-14	1903	Bored, 12-inch	19	Artesian	1,000.00	do
970	do	do	do	E-14	1903	do	do	1,200.00	Not used	do
971	do	do	do	E-14	do	do	do	do	do	...
972	Geo. H. Bixby	do	do	F-14	1883	Bored, 7-inch	19	do	Stock	Stock
973	Bixby Land Co.	do	do	F-14	1901	Bored, 12-inch	45	do	Irrigation	Irrigation
974	do	do	do	F-14	do	do	do	do	Domestic	Domestic
975	do	do	do	F-13	1902	Bored 9½-inch	20	do	Irrigation	Irrigation
976	J. Ross Clark	Los Cerritos	do	G-12, 13	1890	Bored, 4-inch	28	412?	Domestic	Domestic
977	do	do	do	G-12	1902	Bored, 2-inch	21	Artesian, hand	280.00	Small
978	do	do	do	G-12	1897	Bored, 7-inch	21	Artesian	35.00	Small
979	G. R. Clark	do	do	H-12	1898	Bored, 2-inch	19	do	do	...
980	do	do	do	H-12	1901	Bored, 4-inch	19	do	250.00	Irrigation
981	do	do	do	H-12	do	do	do	250.00	do	...
982	do	do	do	H-12	do	do	do	250.00	do	...
983	do	do	do	H-12	1901	do	do	250.00	do	...
984	do	do	do	H-13	1903	do	do	252.00	Domestic; irriga-	Domestic; irriga-
985	do	do	do	H-13	1901	do	do	224.20	tion.	20
986	do	do	do	H-13	1902	do	do	240.00	Irrigation	...
						320	Artesian	23	do	...

## Wells in the Downey quadrangle—Continued.

Owner.	Location.	Year completed.	Class of well.	Elevation of surface.		Depth of well.	Solids per 100,000.	Cost of machinery.	Use of water.	Quantity of water, Miner's inches.
				Feet.	Feet.					
987 Bixby Land Co.	Los Alamitos.	H-14.....	Bored, 2-inch.....	23	260	19	Artesian.....	\$150.00	Domestic.....	39
988 .....do.....		H-14.....	Hydraulic, 4-inch.....	23	268	19	do.....	200.00	Irrigation.....	35
989 .....do.....		H-14.....	do.....	23	268	19	do.....	200.00	do.....	35
990 .....do.....		H-14.....	Bored, 2-inch.....	21	260	do.....	do.....	do.....	Not used.....	..
991 Fred Bixby		H-14.....	Bored, 12-inch.....	21	848	17	do.....	2,500.00	Irrigation.....	306
992 .....do.....		G-14.....	Bored, 8-inch.....	27	189	19	do.....	do.....	Domestic.....	14
993 Alamitos Beach Water Co.		F-14.....	Bored, 12-inch.....	38	725	19	do.....	2,000.00	Domestic; irrigation.	137
994 .....do.....		F-14.....	do.....	38	270	19	do.....	do.....	Irrigation; domestic.	61
995 .....do.....		F-14.....	1903? do.....	40	40	do.....	do.....	do.....	do.....	..
996 Mrs. M. Nelson	Los Cerritos.	D-16.....	1892? Bored, 4-inch.....	39	70	96	Wind.....	do.....	Domestic.....	..
997 John Shrodes		D-16.....	do.....	30	50?	200+	do.....	do.....	Stock.....	..
998 People's Ice Plant		D-16.....	1903 Bored, 3-inch.....	42	70	200+	do.....	35.00	Factory.....	..
999 M. E. Swigel	Los Alamitos.	E-15.....	1900 Bored, 8-inch.....	41	60	do.....	Wind.....	do.....	Not used.....	..
1000 W. A. Peck		E-16.....	1897 Bored, 7-inch.....	50	5	70	do.....	do.....	Irrigation.....	..
1001 D. S. Shaw		E-16.....	1898 Bored, 8-inch.....	48	15	920	200+	3,500.00	do.....	..
1002 Alamitos Beach Water Co.		G-16.....	1887 do.....	45	360	21	do.....	do.....	Not used.....	..
1003 .....do.....		D-16.....	1895 Hydraulic, 2-inch.....	45	114	19	do.....	50.00	do.....	..
1004 Fred H. Bixby		H-16.....	1893 Bored, 2-inch.....	45	250	29	Artesian.....	150.00	Domestic.....	Small.
1005 .....do.....		H-16.....	do.....	45	250	19	do.....	150.00	Irrigation.....	2
1006 .....do.....		I-16.....	do.....	12	110	23	do.....	60.00	Domestic; stock.	Small.
1007 .....do.....		I-14.....	1902 Bored, 4-inch.....	13	375	31	do.....	350.00	Irrigation.....	31

## WELLS IN DOWNEY QUADRANGLE.

1008	do	I-14	1902	do	13	375	25	do	350.00	do	+43	
1009	do	K-16	1902	do	18	300	26	do	300.00	do	37	
1010	do	K, L-15	1902	do	20	350	25	do	325.00	do	32	
1011	do	M-15	1902	do	25	415	do	do	375.00	do	18	
1012	do	L-15	1902	do	22	350	24	do	325.00	do	28	
1013	do	J-15	1895	Hydraulic, 2-inch.	12	250	26	do	150.00	Stock	Small.	
1014	do	K-15	1895	do	20	250	do	do	150.00	do	2	
1015	do	M-15	1897	do	28	250	do	do	150.00	do	Small.	
1016	do	L-16	do	Bored, 7-inch....	21	300	23	do	do	do	Small.	
1017	Bixby Land Co.	do	1-14	Bored, 4-inch....	15	300	25	do	225.00	Irrigation; do-	domestic.	
1018	Wm. Carlson	do	I-14	1900	Hydraulic, 3-inch.	16	300+	21	do	140.00	Domestic; irriga-	tion.
1019	Bixby Land Co.	do	I-14	1902	Bored, 2-inch....	15	295	21	do	95.00	Domestic...	...
1020	do	I-14	1902	Hydraulic, 2-inch.	14	309	23	do	115.00	Domestic; irriga-	tion.	
1021	do	H-14	1902	Bored, 2-inch....	15	300?	23	do	136.00	Domestic...	...	
1022	do	I-14	1878?	do	16	300+	25	do	do	Domestic...	11	
1023	do	I-13	1900	Bored, 4-inch....	19	350	21	do	do	Domestic; irriga-	tion.	
1024	do	I-13	1902	Hydraulic, 2-inch.	20	303	22	do	126.00	Domestic...	10	
1025	do	H-13	1902	Bored, 12-inch....	21	882	do	do	4,000.00	Irrigation...	+95	
1026	do	I-12	1902	do	25	740	22	do	3,500.00	do	150	
1027	J. H. Brown	do	H-13	1900	Hydraulic, 4-inch.	21	280	22	do	140.00	Domestic...	20
1028	Bixby Land Co.	do	H-14	1901	Hydraulic, 2-inch.	16	300	21	do	140.00	do	...
1029	do	H-14	1891	Bored, 4-inch....	21	268	21	do	150.00	Irrigation...	21	
1030	J. Ross Clark	do	H-12	1890	Bored, 7-inch....	500	23	do	do	do	Domestic...	42
1031	do	H-12	1900	Hydraulic, 2-inch.	32	312	23	do	150.00	Domestic...	...	
1032	do	G-11	1902	Bored, 4-inch....	49	420	25	do	285.00	Irrigation...	...	
1033	do	H-11	do	Bored, 2-inch....	48	400?	25	do	do	Domestic...	Small.	
1034	Bixby Land Co.	do	I-13	1895	Hydraulic, 2-inch.	23	300?	21	do	150.00	do	...
1035	I. W. Hellman	do	J-17	1898	Bored, 2-inch....	30	200+	21	do	do	Domestic; stock.	Small.
1036	do	J-17	1898	do	28	145	25	Hand	7.00	Domestic...	5	
1037	do	J-17	1898	do	23	413	do	Artesian...	do	Irrigation; do-	domestic.	
1038	do	K-17	do	do	11	11	do	do	do	Stock	8	
1039	do	K-17	1890?	Bored, 4-inch....	12	250?	26	do	do	do	8	

Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Method of lift.	Cost of machinery.	Cost of well.	Use of water.	Quantity of water.	
										Feet.	Feet.
1040	I. W. Hellman	Los Alamitos	K-17	1897?	Hydraulic, 4-inch.	12	150	150	Stock .....	18	18
1041	do	do	L-17	1895	Bored, 7-inch.....	16	16	151	do .....	19	19
1042	do	do	L-16	1902	Bored, 2-inch.....	17	17	280	do .....	8	8
1043	do	do	K-16	1899	Bored, 4-inch.....	14	14	120	do .....	25	25
1044	do	do	K-17	1899	Bored, 2-inch.....	19	19	120	do .....	Not used .....	Not used .....
1045	do	do	L-16	1900	do .....	14	14	180	do .....	65	65
1046	do	do	K-16	1899	do .....	15	15	185	do .....	65	65
1047	do	do	K-16	1900	Bored, 4-inch.....	15	15	125	do .....	Irrigation .....	7
1048	do	do	K-16	1901	Bored, 2-inch.....	16	16	265	26	Domestic .....	1
1049	do	do	K-16	1897	do .....	190	26	do .....	do .....	Irrigation .....	2
1050	do	do	L-16	1901	do .....	16	16	130	25	do .....	3
1051	do	do	K-16	1900	Bored, 4-inch.....	17	17	250	25	do .....	4
1052	do	do	M-17	1901	do .....	23	340	do .....	do .....	do .....	1
1053	David Rodgers	do	M-17	1901	do .....	19	19	269	29	do .....	22
1054	do	Las Bolsas	M-17	1901	Bored, 3-inch.....	19	19	274	28	do .....	8
1055	do	do	M-17	1899	Bored, 2-inch.....	19	19	285	27	do .....	5
1056	J. R. Robinson	do	M-17	1902	Bored, 4-inch.....	21	21	270	26	Domestic; stock.	8
1057	David Rodgers	do	M-17	1897	Bored, 2-inch.....	23	23	330	28	Irrigation .....	4
1058	J. R. Robinson	do	M-17	1893	do .....	22	22	250 <sup>2</sup>	26	Domestic .....	4
1059	do	do	M-17	1893	do .....	22	22	250 <sup>2</sup>	26	Irrigation .....	4
1060	D. A. Schaffer	do	M-17	1900	do .....	23	23	250	28	do .....	4
1061	do	do	M-17	1900	do .....	22	22	250 <sup>2</sup>	22	Irrigation; domestic.	4

WELLS IN DOWNEY QUADRANGLE.									
1062	do	M-17	1900	do	22	250 <sup>c</sup>	25	125.00	4
1063	T. Willets	do	1897	do	23	190	26	100.00	Domestic
1064	do	M-17	1897	do	23	195	24	100.00	Irrigation
1065	Geo. Bernstein	do	1899	do	21	190	28	100.00	Domestic
1066	do	M-17	1899	do	22	190	27	100.00	Irrigation
1067	do	M-17	1893	Bored, 7-inch	22	90	27	100.00	Stock
1068	do	M-17	1890	do	23	150 <sup>c</sup>	26	100.00	Small
1069	Mr. Sharp	do	M-17	1892?	Bored, 2-inch	23	200 <sup>c</sup>	27	do
1070	H. C. Woodward & Co	do	M-17	1886	Bored, 7-inch	23	333	29	Domestic; irrigation.
1071	Mr. E. B. Finley	do	N-17	1888	do	26	150	27	Domestic
1072	do	do	N-17	1898	Bored, 2-inch	25	300	26	do
1073	O. J. Buck	do	N-17	1878	Bored, 7-inch	25	80	25	Irrigation
1074	J. H. Edwards	do	N-17	1898	Bored, 2-inch	27	380	26	Domestic
1075	do	do	N-17	1880?	Bored, 7-inch	27	370?	26	do
1076	do	do	N-17	1899	Bored, 3-inch	27	360	26	Not used
1077	do	do	N-17	1898	Bored, 2-inch	28	360	27	Irrigation
1078	do	do	N-17	1895	Bored, 7-inch	28	370	26	do
1079	do	do	N-17	1890?	do	28	do	530.00	do
1080	W. G. Alford	do	N-17	1890	do	27	300	28	do
1081	Sampson Edwards	do	N-17	1897	Bored, 2-inch	27	300?	28	do
1082	Mrs. Clark	do	N-17	1888	Bored, 7-inch	29	33	do	Not used
1083	Miss Beckworth	do	N-17	1888?	Bored, 2-inch	29	89	100?	do
1084	F. Wright	do	N-17	1901	Bored, 6-inch	31	100	34	do
1085	L. Hosking	do	N-17	1883?	Bored, 4-inch	32	100	33	Domestic
1086	Mrs. Stewart	do	N-17	1890?	Bored, 2-inch	31	31	100?	do
1087	J. Caldwell	do	N-17	1899	do	33	33	90	Domestic; irrigation.
1088	Mrs. Harper	do	N-17	do	Bored, 3-inch	31	31	100?	do
1089	Robert McClintock	do	N-17	1869	Bored, 2-inch	31	31	do	do
1090	E. E. Buck	do	N-17	1900	do	31	100	29	Domestic; stock.
1091	J. F. Patterson	do	N-17	1894	do	33	111	27	do
1092	Presbyterian parsonage.	do	N-17	1902	do	33	110	27	42.00
1093	H. Flowers	do	N-17	1890?	Bored, 4-inch	33	85	31	50.00
1094	F. F. Skelly	do	N-17	1895	Bored, 2-inch	33	142	29	do
								70.00	do

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Depth of well.	Solids per 100,000.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
Feet.	Feet.	Feet.	Feet.	Feet.	Artesian.	Wind, artesian.	Artesian.	Wind, artesian.	Artesian.	Wind, artesian.	Wind, artesian.	Wind, artesian.
1095 F. F. Skelley.....	Las Bolitas.....	N-17.....	1903	Bored, 2-inch.....	33	112	28	Artesian.....	\$60.00	.....	Domestic; irrigation.	.....
1096 W. E. Lossing.....	do.....	N-17.....	1880	Driven, 2-inch.....	33	75	32	do.....	.....	Domestic.....	Domestic.	.....
1097 do.....	do.....	N-17.....	1892	Bored, 2-inch.....	31	80	33	do.....	60.00	.....	do.....	do.....
1098 P. E. Niles.....	do.....	N-17.....	1902	do.....	32	335	24	Wind, artesian.	140.00	.....	do.....	do.....
1099 R. T. Harris.....	do.....	N-17.....	1883	Bored, 4-inch.....	32	165	26	Artesian.....	.....	.....	do.....	do.....
1100 C. W. Baker.....	do.....	N-17.....	1895	Bored, 2-inch.....	32	80	32	do.....	21.00	.....	do.....	do.....
1101 John Reed.....	do.....	N-17.....	1899	do.....	31	110	26	do.....	.....	do.....	do.....	do.....
1102 Methodist Episcopal parsonage.	do.....	N-17.....	1902	do.....	31	70	.....	Artesian, hand.....	60.00	.....	do.....	do.....
1103 Wm. James.....	do.....	N-17.....	1901	do.....	31	.....	27	Artesian.....	.....	Irrigation.....	Small.	.....
1104 Mr. Kiechhafer.....	do.....	N-17.....	1891	Bored, 7-inch.....	31	375	27	do.....	500.00	.....	Domestic; irrigation.	Small.
1105 Westminster Cheese and Butter Co.....	do.....	N-17.....	1895	Bored, 2-inch.....	30	80	.....	do.....	40.00	.....	Not used.....	.....
1106 J. R. Davis.....	do.....	N-17.....	1902	Bored, 3-inch.....	30	366	29	do.....	180.00	.....	Irrigation.....	9
1107 J. B. Lowring.....	do.....	N-17.....	1897	Bored, 2-inch.....	29	366	28	do.....	150.00	.....	Domestic.....	.....
1108 C. W. Baker.....	do.....	N-17.....	1897	do.....	36	187	.....	do.....	60.00	.....	do.....	.....
1109 C. C. Violett.....	do.....	N-17.....	1899	do.....	35	125	31	do.....	.....	do.....	do.....	.....
1110 C. E. Hammond.....	do.....	N-17.....	1899	do.....	34	106	28	do.....	50.00	.....	do.....	.....
1111 R. Ward.....	do.....	N-17.....	1897	do.....	30	80	33	do.....	35.00	.....	Domestic; irrigation.	4
1112 Wm. Harvey.....	do.....	N-17.....	1899	do.....	28	395	29	do.....	60.00	.....	do.....	2
1113 do.....	do.....	N-17.....	1874?	Bored, 7-inch.....	28	96	29	do.....	.....	Stock.....	Small.	.....
1114 do.....	do.....	N-17.....	1875	do.....	28	96	29	do.....	.....	Irrigation.....	1	.....
1115 Sam Waters.....	do.....	N-17.....	1894	Bored, 3-inch.....	30	80	28	do.....	30.00	.....	do.....	Small.

## WELLS IN DOWNEY QUADRANGLE.

1116	do	do	N-17	1873	Bored, 4-inch	30	83	28	do	50.00	Domestic; irrigation.	Small.
1117	J. R. Cavanah	do	N-17	1878	Bored, 7-inch	29	100+	28	do	Not used	do	do
1118	do	do	N-17	1889	Bored, 4-inch	29	100+	28	Hand, artesian	do	Domestic	Small.
IRR 138	do	do	N-17	1898	Bored, 2-inch	31	31	28	do	Irrigation; domestic.	do	Small.
05	do	do	N-17	1899	Bored, 4-inch	29	29	28	do	Irrigation	do	Small.
1120	R. Naukervis	do	N-17	1900	Bored, 2-inch	27	27	24	Artesian	30.00	Domestic; irrigation.	5
1122	John White	do	M-17	1883?	Bored, 7-inch	29	29	25	do	do	Domestic	Small.
1123	R. Naukervis	do	M-17	1888	do	27	250	do	do	200.00	do	Small.
1124	Wm. Yeo	do	N-17	1895	Bored 2-inch	31	31	80	do	35.00	do	Small.
1125	do	do	N-17	1898	Bored 3-inch	33	33	400	29	150.00	Stock	2
1126	Geo. Phillips	do	N-16	do	Bored, 7-inch	38	38	250	32	do	Not used	do
1127	do	do	N-16	1891	Bored, 4-inch	42	24	250	32	do	Domestic; irrigation.	5
1128	do	do	N-16	1888?	Bored, 7-inch	41	41	250	26	do	Stock	Small.
1129	C. A. Phelps	do	N-16	do	Bored, 2-inch	45	45	do	28	do	Domestic	do
1130	G. K. Lien	do	N-16	1901	Bored, 4-inch	38	38	275	27	do	Domestic; irrigation.	do
1131	do	do	N-16	do	Bored 8-inch	38	38	200+	27	do	Stock	do
1132	C. W. Dickey	do	N-16	1883	Bored, 7-inch	41	41	230	27	do	Domestic; stock	Small.
1133	do	do	N-16	1897	Bored 3-inch	41	41	211	27	do	Irrigation	5
1134	do	do	N-16	1897	Bored, 7-inch	41	41	230	27	do	do	Small.
1135	Geo. Abbott	do	N-16	1890?	do	40	40	78	25	Wind, artesian	Not used	do
1136	Mrs. Lucy Roberts	do	N-16	do	Bored, 2-inch	41	41	100+	22	Artesian	Domestic; irrigation.	Small.
1137	E. D. Barton	do	N-16	1880?	Bored, 7-inch	42	42	230	26	do	Domestic	do
1138	do	do	N-16	1889	do	43	43	230	26	do	Stock	Small.
1139	I. W. Hellman	do	N-15	1888?	do	39	39	do	26	do	do	Small.
1140	G. D. Neil	do	N-14	1896	Bored, 2-inch	48	48	150	24	do	Domestic; irrigation.	Small.
1141	do	do	N-14	1899	do	53	53	150	29	do	Irrigation; stock	Small.
1142	J. Klemm	do	N-14	1897	do	58	58	287	26	Artesian, wind.	Domestic	do
1143	John Wolff	do	N-13	1898	do	58	58	149	27	Hand	do	do
1144	F. Jabs	do	N-13	1898	do	58	58	165	28	Artesian	Stock; domestic	Small.
1145	A. Dargetz	do	N-13	1898	do	58	58	181	27	do	Domestic	Small.

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface freee.	Depth of well.	Solids per 100,000.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.	Miner's inches.	
1146	J. Jabs.....	Los Coyotes.....	N-13.....	1896	Bored, 2-inch.....	60	300+	26	Artesian.....	\$105.00	.....	Domestic; stock.	Small.	
1147	W. J. Cole.....	do.....	N-13.....	1892	Bored, 7-inch.....	60	58	26	Wind; gas.....	235.00	.....	Domestic; irrigation.	+30	
1148	do.....	do.....	N-13.....	1901	do.....	53	51	27	Wind.....	190.00	.....	Stock; irrigation.	.....	
1149	J. Seaman.....	do.....	N-13.....	1902	Bored, 4-inch.....	59	52	27	do.....	90.00	.....	Domestic.....	.....	
1150	H. Hansen.....	do.....	N-12.....	1900	Bored, 6-inch.....	59	54	26	Gas.....	140.00	\$318.00	Domestic; irrigation.	+18	
1151	do.....	do.....	N-12.....	1896	Bored, 2-inch.....	59	.....	27	26	do.....	97.00	.....	do.....	.....
1152	S. Huff.....	do.....	N-12.....	1901	Bored, 7-inch.....	62	56	170	25	Wind.....	125.00	.....	do.....	.....
1153	do.....	do.....	N-12.....	1890	Bored, 2-inch.....	62	.....	170	25	Hand.....	.....	Domestic.....	.....	.....
1154	Mr. Kruger.....	do.....	N-12.....	1900?	Bored, 14-inch.....	63	.....	31	.....	do.....	.....	do.....	.....	.....
1155	Bixby Land Co.....	Los Alamitos.....	M-14.....	1902	Bored, 4-inch.....	38	38	474	27	Artesian.....	385.20	.....	Irrigation.	22
1156	do.....	M-14.....	M-14.....	1901	do.....	36	36	380	24	do.....	220.00	.....	do.....	27
1157	do.....	do.....	M-14.....	1901	do.....	36	36	365	25	do.....	220.00	.....	do.....	27
1158	do.....	do.....	M-14.....	1901	do.....	36	36	359	25	do.....	225.00	.....	do.....	24
1159	do.....	do.....	M-14.....	1901	do.....	33	33	396	28	do.....	250.00	.....	do.....	30
1160	do.....	do.....	M-14.....	1901	do.....	33	33	368	26	do.....	225.00	.....	do.....	26
1161	do.....	do.....	M-14.....	1901	do.....	33	33	358	25	do.....	225.00	.....	do.....	24
1162	do.....	do.....	M-14.....	1901	do.....	32	32	362	25	do.....	225.00	.....	do.....	21
1163	do.....	do.....	M-14.....	1901	do.....	32	32	358	25	do.....	225.00	.....	do.....	17
1164	do.....	do.....	L-15.....	1902	do.....	24	24	466	28	do.....	400.00	.....	do.....	38
1165	do.....	do.....	K-14.....	1901	do.....	23	23	418	26	do.....	350.00	.....	do.....	31
1166	do.....	do.....	K-14.....	1902	do.....	18	18	316	28	do.....	200.00	.....	Domestic.	21
1167	do.....	K-14.....	K-14.....	1900	Bored, 2-inch.....	19	19	358	28	do.....	150.00	.....	do.....	6



## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface, feet.	Depth of well.	Cost of well.	Cost of machinery.	Use of water.	Miner's inches.
1197	Los Alamitos Sugar Co.	Los Alamitos	K-13	1896	Bored, 3-inch...	26	37 <sup>7</sup> /?	28	Artesian	Domestic...	...
1198	Theo. D. Hewitt	do.	L-13	1898	do	34	300	26	do	do	15
1199	do	Los Coyotes	M-13	1900	Bored, 4-inch...	42	42	27	do	Irrigation...	...
1200	J. W. Swope	do.	M-13	1868?	Bored, 6-inch...	42	42	100	do	Domestic...	...
1201	Bixby Land Co.	Los Alamitos	L-14	1865?	Bored, 9 <sup>1</sup> / <sub>2</sub> -inch...	37	37	100	25	do	Not used...
1202	Gus Hansen	Los Coyotes	M-13	1883	Bored, 7-inch...	44	44	270	26	do	Irrigation...
1203	do	do	M-13	do	Bored, 2-inch...	43	43	do	do	do	12
1204	Geo. Burrows	do	M-13	1902	Bored, 12-inch...	42	42	567	32	do	\$1,500.00
1205	A. Kratzer	do	N-14	1898	Bored, 2-inch...	48	48	do	25	do	Domestic...
1206	Mrs. S. R. Edgerly	do	N-13	1898	Bored, 3-inch...	52	52	144	26	do	do
1207	do	do	N-13	1895	Bored, 2-inch...	52	52	175	27	Artesian, hand	47
1208	F. Gruenley	do	N-13	1890?	Bored, 7-inch...	52	52	420	28	Artesian	3
1209	do	do	N-13	1893	Bored, 2-inch...	49	49	300	26	Artesian, hand	Small.
1210	H. Krueger	do	N-13	1883	Bored, 10-inch...	48	48	190	27	Artesian	Small.
1211	Wm. Elliott	do	M-13	1899	Bored, 3-inch...	48	48	200	27	do	Stock...
1212	do	do	M-13	1896	Bored, 2-inch...	50	50	560	26	do	Domestic...
1213	W. H. Musser	do	M-13	1898	do	37	37	300	23	do	Irrigation...
1214	do	do	M-13	1895	do	27	27	43 <sup>7</sup>	do	do	1
1215	W. T. Sparks	do	L-13	1898	do	38	38	300	do	do	Domestic...
1216	Wm. Elliott	do	M-13	1896	do	27	27	336	28	do	Not used...
1217	Cypress school district	do	L-13	1896	do	31	31	300	28	do	Domestic...
1218	C. L. Damron	do	L-13	1896	do	31	31	150.00	150.00	do	Domestic; irrigation.

## WELLS IN DOWNEY QUADRANGLE.

1219	F Thompson	do	L-13	1898	do	32	560	do	225.00	1
1220	L. Deuni	do	L-13	1896	do	31	577	28	216.37	1
1221	A. J. Damron	do	L-12	1896	do	32	530	do	170.00	Small.
1222	do	do	L-12	1894	do	32	330	do	110.00	Small.
1223	do	do	L-12	1897	do	35	536	29	Irrigation...	Domestic; irriga-
1224	do	do	M-12	1897	do	39	500	29	170.00	tion.
1225	do	do	M-13	1896	do	39	300	28	150.00	Irrigation; stock
1226	J. C. & J. S. Tucker	do	M-13	1890?	do	44	400"	26	110.00	Stock...
1227	J. P. Street	do	M-12	1895	do	44	44	325	130.00	Domestic; irriga-
1228	do	do	M-12	1899	do	44	525	27	175.00	tion.
1229	J. A. Hollingsworth	do	M-13	1902	Bored, 3-inch...	45	580	28	Irrigation...	Irrigation; do-
1230	do	do	M-13	1900	Bored, 2-inch...	45	580	28	do	mestic.
1231	B. F. La Rue	do	M-13	1897	do	50	50	270	27	Irrigation...
1232	do	do	M-13	1897	Bored, 7-inch...	50	50	270	28	500.00
1233	Chas. Burrows	do	M-12	1895	Bored, 2-inch...	52	52	500	29	Irrigation...
1234	D. L. Whifney	do	N-12	1895	do	53	53	500	28	Domestic...
1235	O. P. Bunyard	do	N-13	1897	do	53	53	527	28	do
1236	E. P. Wright	do	N-13	1883	Bored, 4-inch...	50	50	200	27	175.00
1237	L. Seaman	do	N-12	1902	Bored, 3-inch...	58	51	100	25	Hand...
1238	Geo. Burrows	do	N-12	1898	Bored, 2-inch...	53	53	500	26	do
1239	G. B. Hemphill	do	N-12	1899	do	54	53	550	25	Artesian...
1240	do	do	N-12	1894	do	54	53	190	26	150.00
1241	J. W. Miller	do	K-12	1888?	Bored, 4-inch...	25	25	200?	27	Not used...
1242	do	do	K-12	do	Bored, 2-inch...	25	25	do	350.00	Domestic...
1243	Chas. Thornton	do	K-12	1896	do	24	560	28	205.00	do
1244	do	do	K-12	1900	do	24	560	do	225.00	Domestic; stock
1245	L. Deuni	do	K-13	1892	do	24	375	27	210.00	Irrigation...
1246	Louis Deuni	do	K-13	1895	do	23	23	566	27	Domestic...
1247	L. H. Harling	do	K-13	1892	Bored, 7-inch...	24	24	300?	26	Irrigation...
1248	do	do	K-13	1898	Bored, 2-inch...	26	26	540	28	Domestic...
1249	Mrs. J. D. Carter	do	K-12	1900	do	27	27	500?	29	300.00
1250	do	do	L-13	1902	Bored, 4-inch...	26	575	28	do	Irrigation...

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
										Miner's inches.
1251	Mrs. E. R. Miller	Los Coyotes	L-12	1897	Bored, 2-inch.....	27	340	\$125.00	Domestic.....	Small.
1252	do	do	L-12	1900	do.....	28	590	300.00	Irrigation.....	3
1253	do	do	L-12	1897	do.....	28	340	125.00	do.....	Small.
1254	J. G. Hannah	do	L-12	1895	do.....	28	333	150.00	do.....	Small.
1255	do	do	L-12	1897	do.....	28	555	250.00	do.....	do.....
1256	Geo. Nelson	do	K-12	1899	do.....	25	548	27	Domestic; irriga- tion.	do.....
1257	W. R. Miller	do	K-12	1894	do.....	27	550	28	Stock.....	Small.
1258	C. C. Neff	do	K-12	1895	do.....	30	326	27	Domestic.....	do.....
1259	Mr. Miller	do	K-12	1891	Bored, 4-inch.....	25	330	210.00	do.....	Small.
1260	James Bradie	do	L-12	1899	Bored, 3-inch.....	31	550	250.00	Irrigation.....	9
1261	J. H. Jackson	do	L-12	1894	do.....	31	330	170.00	do.....	do.....
1262	W. R. Burnett	do	L-12	1895	Bored, 2-inch.....	32	326	150.00	Domestic; irriga- tion.	Small.
1263	Mrs. Sebastian	do	L-12	1895	do.....	35	330	27	Not used.....	do.....
1264	L. Flippin	do	L-12	1898	do.....	30	500	27	Stock.....	Small.
1265	J. J. Feagan	do	L-12	1898	do.....	36	540	28	Domestic; stock.	3
1266	do	do	L-12	1892	Bored, 7-inch.....	36	575	1,800.00	Irrigation.....	Small.
1267	do	do	L-12	1902	Bored, 12-inch.....	38	585	1,650.00	do.....	4
1268	do	do	L-12	1897	Bored, 2-inch.....	38	540	28	Irrigation; stock	Small.
1269	do	do	L-12	1897	do.....	39	596	300.00	Domestic.....	Small.
1270	J. C. Cawthon	do	M-12	1897?	do.....	33	500	do.....	do.....	do.....
1271	J. N. Stockton	do	L-12	1902	do.....	41	184	26	Hand.	do.....
1272	do	do	L-12	1898	do.....	42	400?	27	Artesian.....	Stock.....

## WELLS IN DOWNEY QUADRANGLE.

1273	Mrs. R. J. Reeves	do	M-12	1894	do	45	300	Artesian, wind	Domestic	Small.
1274	C. R. Clausen	do	M-12	1900	do	46	540	29 Artesian	Irrigation	Small.
1275	do	do	M-12	1897	do	46	540	29 do	do	Small.
1276	do	do	M-12	1897	do	48	540	29 do	do	Small.
1277	do	do	M-12	1899	do	48	280	26 Wind	Domestic	Small.
1278	Mr. A. R. Luedkey	do	M-12	1897	do	49	540	Artesian	do	Small.
1279	W. T. Preston	do	M-12	1898	do	52	500	28 do	Irrigation	Small.
1280	J. L. Preston	do	M-12	1898	do	53	500	29 do	Irrigation; domestic	Small.
1281	Wm. Pechstein	do	M-12	1893	do	53	250	do	Domestic	Small.
1282	C. O. Walker	do	N-12	1896	Bored, 5-inch	55	260+	Gas	Irrigation	†50
1283	E. R. Holman	do	N-12	1893	Bored, 2-inch	60	500	27 Wind	Domestic	.....
1284	Wm. Abplanalp	do	N-12	1892	do	60	58	Horsepower	do	.....
1285	Mrs. Harrison	do	N-12	1893	do	59	59	100? Hand	do	.....
1286	P. Mongofsky	do	N-12	1901	Bored, 3-inch	60	51	113 Wind	Not used	.....
1287	Walter Bowen	do	N-12	1891?	Bored, 2-inch	67	58	180	Domestic	.....
1288	Mrs. Laura Harrison	do	N-11	1892	do	68	60	256 Wind	do	.....
1289	Geo. N. Frentz	do	N-11	1873	Bored, 7-inch	66	64	280 Rotary pump	1,000.00	Domestic; irrigation
1291	J. L. Overton	do	N-11	1888	Bored, 2-inch	62	62	500+ Artesian	do	Small.
1292	do	do	N-11	1893	do	63	280	do	Irrigation	.....
1293	A. W. Brooks	do	N-12	1893	Bored, 7-inch	60	80	27 Wind	Domestic	.....
1294	John O. Peterson	do	N-12	1901	Bored, 2-inch	60	52	80 Hand	do	.....
1295	do	do	N-12	1899	Bored, 3-inch	61	57	300 Wind	Irrigation	.....
1296	W. B. Pechstein	do	N-12	1903	do	57	51	152 do	Domestic	.....
1297	Centralia school dist.	do	N-11	1897	Bored, 2-inch	60	60	486 Artesian	do	Small.
1298	John Terry	do	N-11	1900	Bored, 7-inch, 270 feet; 3-inch, 200 feet.	59	470	28 do	500.00	Irrigation
1299	do	do	N-11	1900	Bored, 3-inch	59	475	28 do	300.00	do
1300	do	do	N-11	1900	Bored, 2-inch	59	475	28 do	150.00	Domestic
1301	Mr. Cordiss	do	N-12	1897	do	57	290	do	Irrigation	Small.
1302	J. C. Roller	do	M-11	1896	do	53	200?	28 do	do	Small.
1303	do	do	M-11	1896	do	27	27	do	Stock	Small.
1304	do	do	M-11	1896	do	28	27	do	Irrigation	Small.
1305	D. Holder	do	M-11	1899	Hydraulic, 2-inch	54	510	28 do	Domestic	Small.

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.	Miner's inches.		
														Stock.....		
1306	J. Stevens	Los Coyotes.	N-12.....	1890	Bored, 2-inch.....	58	517	28	Artesian.....	\$200.00					Stock.....	Small.
1307	do	do	N-12.....	1895	do.....	58	300	do							Irrigation.....	Small.
1308	C. Weber	do	M-12.....	1889	Bored, 7-inch.....	54	477	104	Hand	80.00					Domestic.....	
1309	do	do	M-12.....	1897	Bored, 3-inch.....	54	515	28	Artesian.....	175.00					Stock.....	Small.
1310	do	do	M-12.....	1897	Bored, 2-inch.....	54	530	28	do	180.00					Irrigation.....	Small.
1311	do	do	M-12.....	1893	Bored, 7-inch.....	54	54	343	28		500.00				Not used.....	
1312	C. E. Carrier	do	N-12.....	1898	Bored, 2-inch.....	58	520	27	Artesian.....	300.00					do	
1313	T. M. Laynachan	do	M-11.....	1897	do.....	50	449	27	do	157.15					Irrigation; domestic.	1½
1314	do	do	M-11.....	1897	do.....	51	515	28	do	180.25					do.....	
1315	S. O. Walker	do	M-11.....	1897	do.....	48	292	29	Hand	120.00					Domestic.....	Small.
1316	do	do	M-12.....	1897	do.....	50	500?	31	Artesian.....	230.00					do.....	
1317	do	do	M-12.....	1897	do.....	50	500	do		205.00					Irrigation.....	Small.
1318	do	do	M-12.....	1900	Bored, 3-inch.....	50	700	27	do	450.00					do.....	
1319	W. D. Gilmore	do	M-12.....	1899	Bored, 2-inch.....	48	590	28	Artesian, wind.	200.00					Stock.....	3
1320	do	do	M-12.....	1903	do.....	47	100	28	Wind	50.00					Domestic.....	Small.
1321	Geo. D. Miller	do	M-12.....	1902	Bored, 10-inch.....	47	47	652	29	Artesian.....	1,700.00				Irrigation.....	1
1322	do	do	M-12.....	1890	Bored, 2-inch.....	47	47	286	27	do					Domestic; irrigation.	
1323	do	do	M-11.....	1896	do.....	47	47	596	27	do					Irrigation.....	
1324	G. Dewey	do	M-11.....		Bored, 7-inch.....	47	47	do		1,700.00					Not used.....	
1325	A. Larreel	do	M-12.....	1902	Bored, 2-inch.....	42	40	135	Hand	65.00					Domestic.....	
1326	B. Mouliot	do	L-12.....	1899	do.....	39	39	569	Artesian.....	175.00					Irrigation.....	Small.
1327	do	do	L-12.....	1897	do.....	38	38	542	28	do	160.00				do.....	Small.

## WELLS IN DOWNEY QUADRANGLE.

1328	do	do	L-12	1897	do	37	531	28	do	160.00	Domestic; irrigation.	Small.
1329	do	do	L-12	1898	do	33	596	28	do	175.00	Irrigation.	2
1330	E. J. Behnke	do	L-11	1892	Bored, 7-inch	37	316	28	Hand	600.00	Stock.	.....
1331	do	do	L-11	1898	Bored, 2-inch	38	563	34	Artesian	160.00	Not used.	.....
1332	H. H. Corell	do	L-11	1892	Bored, 7-inch	51	284	do	do	420.00	Irrigation.	.....
1333	do	do	L-11	1897	Bored, 2-inch	37	554	28	do	do	do	Small.
1334	do	do	L-11	1900	Bored, 3-inch	37	568	30	do	305.00	do	.....
1335	J. P. Moody	do	M-11	1900	do	35	541	28	do	300.00	do	+9
1336	do	do	L-11	1885?	Bored, 7-inch	33	200	28	do	do	Domestic; irrigation.	5
1337	do	do	L-11	1898	Bored, 3-inch	33	440	do	do	200.00	Irrigation.	Small.
1338	do	do	L-11	1901	do	33	300	28	do	175.00	do	.....
1339	J. F. Sheldon	do	L-12	1899	Bored, 2-inch	32	550?	27	do	do	do	Small.
1340	do	do	L-12	1899	Bored, 3-inch	32	550?	28	do	do	do	1½
1341	do	do	L-12	1893	Bored, 4-inch	31	300	27	do	do	do	.....
1342	Mr. Ermston	do	L-11	1894	Bored, 7-inch	29	20	25	do	do	do	.....
1343	O. Bell	do	K-11	1900	Bored, 3-inch	29	220	28	do	do	do	.....
1344	B. F. Draper	do	K-11	1901	Bored, 2-inch	29	315	do	do	100.00	Domestic; irrigation.	9
1345	Mrs. M. A. Geoddel	do	K-12	1897	Bored, 3-inch	25	541	28	do	190.00	Domestic; irrigation.	14
1346	do	do	K-12	1870?	Bored, 7-inch	25	122	27	do	600.00	Domestic.	9
1347	do	do	K-12	1870?	do	26	132	27	do	600.00	Irrigation.	.....
1348	Bloomfield district	do	K-12	1889	Bored, 2-inch	26	240	28	do	do	Domestic.	Small.
1349	B. J. Jones	do	K-12	1886	Bored, 7-inch	28	156	28	do	150.00	Domestic; irrigation.	Small.
1350	do	do	K-12	1888	do	28	224	28	do	250.00	Irrigation.	Small.
1351	do	do	K-12	1901	Bored, 3-inch	28	555	28	do	315.00	do	+12
1352	J. Swagard	do	K-12	1893	do	28	500?	do	do	300.00	Not used.	.....
1353	do	do	K-12	1898	do	28	500	27	do	300.00	Irrigation.	.....
1354	W. S. Grant	do	K-12	1888	Bored, 7-inch	26	150	27	do	150.00	Domestic.	.....
1355	do	do	K-12	1901	Bored, 3-inch	26	550	28	do	300.00	Irrigation.	+8
1356	H. Whipple	do	K-12	1897?	Bored, 2-inch	25	350+	27	do	do	Domestic.	.....
1357	do	do	K-12	1898	Bored, 3-inch	25	550	28	do	do	Irrigation.	2
1358	Fred Smith	do	J-12	1896	Bored, 2-inch	25	165	26	do	50.00	Domestic.	.....
1359	do	do	J-12	1898	Bored, 3-inch	25	201	28	do	92.00	Irrigation.	Small.

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Method of lift.	Cost of well.	Cost of machinery.	Quantity of water. Miner's inches.	Use of water.
1360	Fred Smith	Los Coyotes	J-12.....	1900	Bored, 3-inch.....	25	312	\$180.00	Irrigation . . . . .	
1361	Columbus Jackson	do.....	J-12.....	1898	Bored, 2-inch.....	28	173	52.00	Domestic; irriga- tion. . . . .	
1362	B. F. Draper	do.....	J-12.....	1898	do.....	28	300	27	Irrigation . . . . .	
1363	do.....	do.....	J-12.....	1899	do.....	27	300	28	Stock . . . . .	
1364	do.....	do.....	J-12.....	1902	do.....	27	300	28	Stock . . . . .	
1365	L. A. Goodrich	do.....	J-12.....	1900	Bored, 3-inch.....	25	230	24	Domestic; irriga- tion. . . . .	
1366	Anson Woodon	do.....	J-12.....	1898	Bored, 2-inch.....	28	300	24	Domestic; stock. . . . .	
1367	H. L. Gordon	do.....	J-12.....	do.....	do.....	27	24	do.....	Domestic . . . . .	
1368	do.....	do.....	J-12.....	do.....	Bored, 7-inch.....	27	27	do.....	Stock . . . . .	
1369	do.....	do.....	Los Cerritos	I-12.....	Bored, 4-inch.....	27	27	do.....	Irrigation . . . . .	
1370	do.....	do.....	I-12.....	do.....	Bored, 10-inch.....	28	28	26	do.....	
1371	do.....	do.....	I-12.....	do.....	Bored, 4-inch.....	28	28	27	do.....	
1372	do.....	do.....	I-12.....	do.....	do.....	28	28	27	do.....	
1373	do.....	do.....	I-12.....	do.....	do.....	28	28	26	do.....	
1374	do.....	do.....	I-12.....	do.....	Bored, 2-inch.....	29	29	21	do.....	
1375	do.....	do.....	I-12.....	do.....	Bored, 4-inch.....	29	29	21	do.....	
1376	do.....	do.....	I-12.....	do.....	do.....	29	29	21	do.....	
1377	do.....	do.....	I-12.....	do.....	do.....	29	29	21	do.....	
1378	do.....	do.....	I-12.....	do.....	do.....	27	27	26	do.....	
1379	do.....	do.....	J-12.....	do.....	do.....	26	26	24	do.....	
1380	do.....	do.....	J-12.....	do.....	do.....	26	26	26	do.....	
1381	do.....	do.....	J-12.....	do.....	do.....	26	26	26	do.....	

## WELLS IN DOWNEY QUADRANGLE.

1382	W. J. Woodin	Los Coyotes	J-11	1894	Bored, 2-inch.....	31	240	22	do	135.00	Domestic.....	Small.
1383	do	do	J-11	1886	Bored, 7-inch.....	31	240	26	do	300.00	Stock.....	Small.
1384	S. L. Leighton	do	J-11	1885	do.....	31	243	25	do	do	Domestic.....	Small.
1385	W. Donnelley	do	J-11	1897	Bored, 2-inch.....	31	31	180	25	do	do	do
1386	B. H. Norton	do	J-11	1897	Bored, 3-inch.....	31	31	185	24	do	64.75	Irrigation.....
1387	C. Dorety	Los Cerritos	I-11	1900	Bored, 4-inch.....	32	32	300	do	200.00	do	do
1388	do	do	I-11	1900	Bored, 2-inch.....	32	32	180	do	70.00	do	do
1389	W. M. Delano	Los Coyotes	K-11	1899	do.....	30	30	250	do	do	Domestic.....	4
1390	J. T. McCann	do	J-11	1899	do.....	29	29	180	27	do	Domestic; irrigation.....	16
1391	do	do	J-11	1899	do.....	29	29	180	29	do	Irrigation.....	do
1392	J. S. McDonald	do	K-12	1899	do.....	28	28	550	27	do	Irrigation; domestic.	4
1393	A. Von Grunegeen	do	K-12	1885	Bored, 7-inch.....	28	28	550?	26	do	Stock.....	do
1394	do	do	K-12	1898	Bored, 3-inch.....	28	28	550?	26	do	Irrigation.....	8
1395	do	do	K-12	1893?	Bored, 7-inch.....	28	28	do	do	do	Stock.....	1
1396	R. M. Foote	do	K-11	1876	do.....	28	28	236	27	do	Domestic.....	do
1397	do	do	K-11	1885?	do.....	28	28	219	27	do	Irrigation.....	do
1398	do	do	K-11	1899	Bored, 3-inch.....	28	28	591	do	do	do	3
1399	Francis Pearce	do	K-11	1876	Bored, 7-inch.....	30	30	275	28	Horsepower.....	do	do
1400	do	do	K-11	1880	Bored, 4-inch.....	30	30	164	do	Artesian.....	240.00	do
1401	M. Stanfield	do	K-11	1896	Bored, 2-inch.....	31	31	80	26	do	Stock.....	do
1402	do	do	K-11	1896	do.....	31	31	300	do	do	Domestic.....	do
1403	B. Chubbic	do	K-11	1885	Bored, 7-inch.....	32	32	200	26	do	Stock.....	do
1404	F. E. Green	do	J-11	1898	Bored, 3-inch.....	34	34	175	do	70.00	Domestic; irrigation.....	do
1405	R. G. Raynscroft	do	J-11	1892	Bored, 7-inch.....	33	33	130	25	Artesian, wind.....	do	do
1406	do	do	K-11	1897	Bored, 3-inch.....	31	31	190	do	Artesian.....	Irrigation.....	3
1407	do	do	K-11	1897	Bored, 2-inch.....	31	31	190	do	do	do	2
1408	F. Hancock	do	J-11	1901	Bored, 3-inch.....	31	31	200	do	do	Domestic.....	2
1409	J. H. Crittenden	do	J-11	1897	Bored, 2-inch.....	33	33	550	29	do	do	do
1410	Jim Mushrust	do	K-11	1893	Bored, 7-inch.....	33	33	180	24	do	Domestic.....	do
1411	do	do	K-11	1899	Bored, 2-inch.....	35	35	350?	28	do	Irrigation .....	do
1412	Benj. Chubbic	do	K-11	1897	Bored, 3-inch.....	32	32	330	28	do	160.00	do
1413	Mrs. M. E. Frankie	do	K-11	1898	Bored, 2-inch, 30 feet; 3-inch, 270 feet.	32	32	300	do	do	do	do

*Wells in the Downey quadrangle—Continued.*

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Method of lift.	Cost of machinery.	Use of water.	Quantity of water.
1414	Thos. Moyle	Los Coyotes	K-11	1895	Bored, 2-inch	33	181	24	Artesian	\$100.00	Domestic; irrigation.	2
1415	R. W. Bingham	do	K-11	1899	do	34	190	27	do	100.00	Domestic	7
1416	do	do	K-11	1892	Bored, 7-inch	34	237	22	do	575.00	Irrigation	7
1417	do	do	K-11	1899	Bored, 2½-inch	34	200	do	do	125.00	do	7
1418	do	do	K-11	1899	do	34	200	27	do	125.00	do	7
1419	do	do	K-11	1900	Bored, 7-inch	34	295	do	do	675.00	do	7
1420	Judge Willis	do	K-11	1900	Bored, 2-inch	33	33	100?	27	do	Domestic	7
1421	Geo. Apgar	do	K-11	1881	Bored, 7-inch	31	200	27	do	300.00	Stock	41
1422	do	do	K-11	1897	Bored, 3-inch	32	32	165	27	do	Irrigation	9
1423	do	do	K-11	1897	Bored, 2-inch	32	32	235	27	do	do	3
1424	do	do	K-11	1894	Bored, 7-inch	34	34	316	26	do	do	1
1425	Perry Moore	do	I-11	1901	Bored, 3-inch	35	35	550	26	do	do	8
1426	Mrs. Hollister	do	I-11	1901	do	38	38	318	25	do	do	8
1427	M. Williams	do	I-11	1893	Bored, 7-inch	38	38	210	25	do	Domestic	small.
1428	do	do	I-11	1900	Bored, 3-inch	38	38	318	26	do	do	8
1429	do	do	I-11	1900	do	37	37	320	26	do	Irrigation	5
1430	C. L. Chamberlain	do	I-11	1901	do	39	39	520	do	289.00	Stock	Small.
1431	O. J. Chamberlain	do	I-11	1903	Bored, 4-inch	41	41	286	do	268.00	Irrigation	25
1432	G. S. Chamberlain	do	I-11	1902	do	42	42	266	26	do	do	8
1433	E. A. Gotterba	do	I-11	1896	Bored, 2-inch	37	37	200+	27	do	Stock	Small.
1434	R. B. Luther	do	I-11	1902	do	38	38	87	28	75.00	Domestic; irrigation	1
1435	C. Salisbury	do	M-11	1897	do	39	39	150	27	do	do	1



## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Method of lift.	Use of water.		Quantity of water.	
							Feet.	Feet.		
1469	Penelope Calder.	Los Coyotes.	N-10	1898	Bored, 3-inch.....	57	420	26	Artesian.....	\$200.00
1470	do.	do.	N-10	1896	do.....	57	420	do	Stock.....	200.00
1471	do.	do.	M-10	1898	do.....	53	420	29	Not used.....	200.00
1472	Dr. Jas. Calder.	do.	M-10	1898	do.....	52	420	28	Domestic.....	200.00
1473	do.	do.	N-10	1898	do.....	56	420	do	do	200.00
1474	do.	do.	N-10	1898	do.....	51	420	29	Not used.....	200.00
1475	Rev. J. Cameron	do.	M-10	do	do.....	51	400?	32	do	do
1476	R. Loritt.	do.	M-10	1895	Bored, 2-inch.....	52	300	27	Stock.....	200.00
1477	J. A. McDonald	do.	M-10	1883	Bored, 7-inch.....	49	180	29	Domestic; stock.....	100.00
1478	do.	do.	M-10	1883?	do.....	51	200?	do	Stock.....	100.00
1479	do.	do.	M-10	1896	Bored, 3-inch.....	49	407	29	Stock.....	225.00
1480	do.	do.	M-10	1896	do.....	50	450	29	Stock.....	240.00
1481	do.	do.	M-10	1883	Bored, 7-inch.....	50	do	do	Not used.....	100.00
1482	do.	do.	M-9	1902	Hydraulic, 3-inch.	51	197	do	Irrigation.....	100.00
1483	do.	do.	M-10	1902	do.....	50	237	do	do	125.00
1484	do.	do.	M-10	1902	Bored, 4-inch.....	50	230	30	Stock.....	150.00
1485	do.	do.	M-9	1883	Bored, 7-inch.....	56	250	do	Irrigation.....	100.00
1486	W. H. Hall	do.	M-10	1902	Bored, 12-inch.....	45	286	Gas.....	Stock.....	550.00
1487	do.	do.	M-10	1900	Bored, 7-inch.....	46	286	Artesian.....	Irrigation.....	\$900.00
1488	do.	do.	L-10	1900	do.....	45	135	27	Not used.....	250.00
1489	W. H. Forbes	do.	L-11	1902	Hydraulic, 3-inch.	42	575	27	Domestic; irrigation.	190.00
1490	do.	do.	L-11	1900	do.....	42	600	27	Irrigation.....	300.00
1491	do.	do.	L-11	1903	Hydraulic, 2-inch.	42	280	27	do.....	350.00
									Domestic.....	125.00
									Domestic.....	1

[no. 138.]

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## WELLS IN DOWNEY QUADRANGLE.

1492	G. S. McWilliams	do	L-11	1898	Hydraulic, 3-inch.	42	393	28	do	Irrigation.	3
1493	do	do	L-11	1898	do	43	280	27	do	do	2
1494	do	do	L-11	1896	Bored, 2-inch	43	43	280	27	do	Domestic.
1495	do	do	L-11	1897	Hydraulic, 3-inch.	43	43	378	27	do	Domestic; irrigation.
1496	do	do	L-11	1903	Bored, 4-inch	43	43	282	27	do	Irrigation.
1497	M. C. Chase	do	L-11	1898	do	42	615	30	do	do	2
1498	do	do	L-11	1902	Hydraulic, 3-inch.	42	42	280	27	do	do
1499	do	do	L-11	1903	Bored, 4-inch	42	42	280	27	do	do
1500	Mr. Haskell	do	L-10	do	Bored, 3-inch	44	44	26	do	do	4
1501	Mr. Shneck	do	L-10	do	Bored, 7-inch	43	43	29	do	Domestic; irrigation.	Small.
1502	do	do	L-10	do	Hydraulic, 2-inch.	43	43	do	do	Not used.	.....
1503	E. Heimerte	do	L-10	1883	Bored, 6-inch	39	39	280	26	do	Domestic.
1504	Mr. Omstead	do	L-10	1883	Bored, 7-inch	41	41	250	27	do	Small.
1505	J. W. Alexander	do	R-10	1892	Hydraulic, 2-inch	41	41	235	23	do	Small.
1506	do	do	K-10	1895	do	41	41	230	24	do	Domestic; irrigation.
1507	J. F. Thompson	do	K-10	1897	do	41	41	500	36	do	Domestic; irrigation.
1508	do	do	K-10	1898	do	41	41	500	32	do	Irrigation.
1509	W. Hancock	do	K-10	1888?	Bored, 7-inch	41	40	23	Hand.	Domestic.	3
1510	A. J. Wells	do	K-11	1888?	do	37	200	25	Artesian.	do	.....
1511	Carey & McKinley	do	K-11	1897	Hydraulic, 2-inch	37	37	200	32	do	Small.
1512	do	do	K-11	1896	Bored, 7-inch	37	37	200	30	do	Small.
1513	do	do	K-11	1898	Hydraulic, 2-inch	37	37	500	31	do	do
1514	do	do	K-11	1898	do	37	37	200	30	do	Not used.
1515	L. Thornton	do	J-11	1896	do	38	38	200	30	do	Domestic.
1516	do	do	J-11	1901	Bored, 5-inch	38	38	200	30	do	Irrigation.
1517	do	do	K-11	1901	do	39	39	200	23	do	do
1518	A. S. Mansee	do	J-11	1893	Bored, 4-inch	38	38	200	Gas, artesian	430.00	Domestic; irrigation.
1519	John Severs	do	J-11	1885	Bored, 7-inch	38	38	189	22	Artesian	237.50
1520	F. T. Morse	do	J-11	1892	do	37	37	243	23	do	Irrigation.
1521	W. L. Campbell	do	J-11	1893	Hydraulic, 3-inch	35	35	156	55	do	Domestic.
1522	do	do	J-11	1903	Bored, 7-inch	35	35	303	22	do	Irrigation.
1523	W. A. Campbell	do	J-11	1875	do	39	39	203	22	do	Domestic.

## 96 UNDERGROUND WATERS, SOUTHERN CALIFORNIA—II. [NO. 138.

Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface, feet.	Elevation of water, feet.	Depth of well.	Method of lift.	Cost of well.	Cost of machinery.	Quantity of water.	
												Solids per 100,000.	Miner's inches.
1524	W. A. Campbell	Los Coyotes	J-11	1874	Bored, 7-inch	40	40	22	Artesian	\$850.00	.....	Domestic	Small.
1525	J. E. Courtney	do	I-11	1875?	do	42	42	180+	Wind, artesian	.....	do	do	Small.
1526	John Keir	Los Cerritos	I-11	1883	do	40	40	228	Artesian	.....	do	do	do
1527	Mrs. M. Butler	do	I-11	1897	Hydraulic, 2-inch	41	41	185	do	.....	do	do	do
1528	Mr. Gordon	Los Coyotes	I-11	1897?	do	43	43	23	do	.....	Stock	Domestic	Small.
1529	J. C. Smith	do	K-10	1892	do	42	42	23	do	.....	Stock	Domestic	Small.
1530	N. D. Robinson	do	K-10	1877	Bored, 7-inch	40	40	195	22	.....	100.00	Stock	4
1531	do	do	K-10	1894	Hydraulic, 3-inch	39	39	185	Hand, artesian	150.00	.....	Domestic	12
1532	do	do	K-10	1897?	Hydraulic, 2-inch	44	44	175	do	.....	100.00	Irrigation; stock	5
1533	Mr. Dolley	do	K-10	1888?	Bored, 7-inch	42	42	180	23	do	.....	Not used	do
1534	F. H. Purdy	do	K-10	1899	Hydraulic, 3-inch	41	41	140	do	.....	Domestic; irrigation	Domestic; irrigation	Small.
1535	do	do	K-10	1898	Hydraulic, 2-inch	43	43	140	22	do	.....	Irrigation	do
1536	Mr. Hurley	do	K-10	1888	Bored, 7-inch	42	42	200	do	.....	300.00	Domestic	do
1537	C. Dohn	do	J-10	1888	Hydraulic, 2-inch	40	40	175	25	do	.....	Irrigation	do
1538	do	do	J-10	1897	do	42	42	175	do	.....	51.00	Not used	do
1539	do	do	J-10	1897	Bored, 7-inch	44	44	200	22	do	.....	Irrigation	do
1540	B. A. Epperly	do	J-10	1897	Hydraulic, 2-inch	44	44	200	22	do	.....	Domestic; irrigation	1
1541	do	do	J-10	1895	do	42	42	50	do	.....	do	do	do
1542	Epperly estate	do	J-10	1893?	Bored, 7-inch	42	42	300	22	do	.....	Irrigation	do
1543	do	do	J-10	1896	Hydraulic, 2-inch	40	40	250	22	do	.....	Not used	do
1544	do	do	J-10	1896	do	40	40	560	30	do	.....	do	do

1546	S. A. Frampton.....	do.....	J-10.....	1875?	Bored, 7-inch.....	42	42	200+	22	...d0.....	Domestic.....	12
1547	do.....	do.....	J-10.....	1891	...do.....	40	40	200+	22	...d0.....	Irrigation.....	2
1548	L. Carse.....	do.....	J-10.....	1877	...do.....	43	43	252	...d0.....	525.00	Stock.....	Small.
1549	do.....	do.....	J-10.....	1897	Hydraulic, 2-inch.	43	43	142	25	...d0.....	Domestic.....	.....
1550	F. T. Morse.....	do.....	J-10,11.....	1892	Bored, 7-inch.....	41	41	197	23	...d0.....	Domestic; irrigation.	.....
1551	E. P. Morrison.....	do.....	J-10.....	1897	Hydraulic, 2-inch.	44	44	176	23	...d0.....	Domestic.....	.....
1552	Crown Creamery Co.....	do.....	J-10.....	1900	...do.....	45	45	176	22	...d0.....	Domestic.....	Small.
1553	N. Gregory.....	do.....	I-10.....	.....	Bored, 7-inch.....	46	46	464	22	...d0.....	do.....	Small.
1554	do.....	do.....	I-10.....	.....	Hydraulic, 2½-inch	45	45	170	23	...d0.....	Irrigation.....	Small.
1555	Mr. Russell.....	do.....	I-10.....	.....	Hydraulic, 2-inch.	42	42	...d0.....	22	...d0.....	Domestic.....	Small.
1556	C. M. Buck.....	do.....	I-10.....	1889	Bored, 7-inch.....	45	45	180	22	...d0.....	do.....	Small.
1557	J. E. Stones.....	do.....	I-10.....	1902	Hydraulic, 3-inch.	46	46	...d0.....	21	...d0.....	Domestic; irrigation.	4
1558	Mr. White.....	do.....	I-10.....	1892?	Hydraulic, 2-inch.	44	44	...d0.....	24	...d0.....	Stock.....	Small.
1559	L. C. Butler.....	do.....	I-10.....	1890	...do.....	46	46	113	25	...d0.....	Domestic.....	Small.
1560	W. A. Sackett.....	Los Cerritos.....	I-10.....	1891	...do.....	45	45	180	25	...d0.....	Domestic; irrigation.	2
1561	J. W. Hansard.....	do.....	H-1.....	1897	...do.....	42	42	180	26	...d0.....	Stock.....	Small.
1562	Mrs. Richardson.....	do.....	H-11.....	.....	...do.....	43	43	180	25	Hand, artesian.	Domestic.....	Small.
1563	Alexander Watson.....	do.....	H-10.....	1895	...do.....	45	45	160	26	...d0.....	Domestic; irrigation.	.....
1564	Mr. Burger.....	do.....	H-10.....	1897	...do.....	47	47	250	22	Artesian.....	85.00	Domestic.....
1565	N. Jish.....	do.....	H-10.....	1899	...do.....	47	47	633	22	...d0.....	300.00	Irrigation.....
1566	J. A. Goodlin.....	do.....	H-10.....	1895	...do.....	47	47	131	28	...d0.....	36.00	Domestic; irrigation.
1567	S. E. Garber.....	do.....	H-10.....	1896	Bored, 7-inch.....	50	50	600+	27	Wind, artesian .	Irrigation.....	.....
1568	do.....	do.....	H-10.....	1902	Bored, 12-inch.....	50	46	130	...d0.....	Not raised.....	Not used.....	.....
1569	S. T. Carum.....	do.....	H-10.....	1895	Hydraulic, 2-inch.	50	50	180	25	Wind, artesian .	Domestic.....	Small.
1570	H. W. Carum.....	do.....	I-10.....	1880	Bored, 7-inch.....	48	46	190	25	Hand	Stock.....	.....
1571	do.....	do.....	I-10.....	1900	Bored, 34-inch.....	48	47	135	...d0.....	115.00	Domestic.....	.....
1572	do.....	do.....	I-10.....	1900	...do.....	48	47	135	...d0.....	Not raised.....	Not used.....	.....
1573	W. L. Campbell.....	Los Coyotes.....	I-10.....	1886	Bored, 4-inch.....	49	49	160	27	Artesian.....	Stock.....	Small.
1574	do.....	do.....	I-10.....	1895	Bored, 7-inch.....	49	49	150	27	...d0.....	do.....	Small.
1575	do.....	do.....	I-10.....	1893	Hydraulic, 2-inch.	50	50	150	22	...d0.....	Domestic.....	Small.
1576	do.....	do.....	I-10.....	1893	...do.....	50	50	150	26	...d0.....	Stock.....	Small.
1577	do.....	do.....	I-9,10.....	1895	Bored, 7-inch.....	51	51	160	...d0.....	do.....	do.....	Small.

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.		Depth of well.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	Feet.					
1578	L. E. Dean	Los Coyotes	I-10	Bored, 7-inch	51	215	23	Hand, artesian	.....	Domestic	.....	Miner's inches.
1579	J. B. Ashby	do	I-10	do	51	278	23	Artesian	.....	Domestic; irrigation	.....	1
1580	I. L. de Cleereq	do	I-10	1900 Hydraulic, 2-inch	50	78	do	Hand, artesian	\$35.00	Domestic	.....	Small.
1581	John Paul	do	I-10	Bored, 7-inch	49	300	23	Hand, artesian	.....	do	.....	Small.
1582	D. C. Ewing	do	I-10	do	48	22	do	do	.....	do	.....	.....
1583	P. T. Ward	do	I-10	1880?	47	300	22	Artesian	.....	do	.....	Small.
1584	E. P. Meggs	do	I-10	Driven, 1½-inch	47	70	22	Hand	.....	do	.....	.....
1585	C. C. Wright	do	I-10	Hydraulic, 3-inch	53	330	22	Artesian	.....	do	.....	Small.
1586	John Brooker	do	I-10	Hydraulic, 2-inch	52	100	23	Hand, artesian	.....	do	.....	.....
1587	S. R. Ibbotson	do	J-10	1894	52	176	do	Artesian	100.00	do	.....	.....
1588	Artesian school district	do	J-10	Bored, 4-inch	47	47	200	do	.....	do	.....	.....
1589	Artesian Christian Church	do	J-10	1893 Hydraulic, 2-inch	48	127	23	do	.....	do	.....	Small.
1590	Wm. Gamble	do	J-10	1900 do	52	85	24	do	.....	do	.....	Small.
1591	do	do	J-10	1893? Bored, 6-inch	51	300	do	do	.....	Irrigation	.....	.....
1592	M. E. Rurviance	do	J-10	1888? Bored, 4-inch	50	125	24	do	.....	Domestic	.....	Small.
1593	Methodist Episcopal parsonage	do	J-10	Hydraulic, 2-inch	47	47	23	do	.....	Domestic; irrigation	.....	1
1594	C. B. Scott	do	J-10	1893? Bored, 7-inch	46	333	22	do	.....	Domestic	.....	.....
1595	G. R. Frampton	do	J-10	1883 do	45	23	do	do	.....	do	.....	.....
1596	W. H. Smith	do	J-10	1896 Hydraulic, 2-inch	45	212	22	do	.....	Not used	.....	.....
1597	L. J. Stone	do	J-10	1893 do	45	181	23	Hand, artesian	125.75	Domestic	.....	Small.
1598	Mr. Morris	do	J-10	1888? Bored, 8-inch	44	300	23	Artesian	.....	do	.....	Small.

		Stock	Irrigation; do-	Small.
			domestic.	Domestic.
1599	I. Nicholls.....	J-10.....	1888? Bored, 7-inch.....	do.....
1600	.....do.....	J-10.....	1900 Hydraulic, 3-inch.	300.00 .....
1601	G. R. Frampton.....	J-10.....	1900 Hydraulic, 2-inch.	120.00 .....
1602	C. A. Linge.....	J-10.....	1894? do.....	do.....
1603	James Gillespie.....	J-10.....	1892 Bored, 7-inch.....	do.....
1604	.....do.....	K-10.....	1900 Hydraulic, 2-inch.	do.....
1605	.....do.....	J-9.....	1895 Hydraulic, 3-inch.	do.....
1606	Mrs. J. Purdy.....	J-10.....	1895 Hydraulic, 2-inch.	do.....
1607	.....do.....	J-10.....	1896 do.....	do.....
1608	H. D. Andrews.....	J-10.....	1897 do.....	do.....
1609	T. H. Johnson.....	J-9.....	1896 do.....	do.....
1610	.....do.....	J-9.....	1896 Hydraulic, 3-inch.	do.....
1611	R. Carter.....	J-10.....	1896 Hydraulic, 2-inch.	do.....
1612	Mrs. M. Turner.....	J-9.....	1895 do.....	do.....
1614	D. S. Drisbach.....	J-10.....	1894 do.....	do.....
1615	T. P. Patterson.....	J-10.....	1896 do.....	do.....
1616	.....do.....	J-10.....	1899 Bored, 4-inch.....	do.....
1617	J. B. Hollingsworth.....	J-10.....	1898 Hydraulic, 2-inch.	do.....
1618	S. G. Woodward.....	J-10.....	1895 Bored, 7-inch ,.....	do.....
1619	.....do.....	K-10.....	1899 Hydraulic, 3-inch.	do.....
1620	Mr. Gould.....	K-10.....	1898 Hydraulic, 2-inch.	Artesian.....
1621	D. Thaicher.....	K-10.....	1893 Bored, 2-inch.....	do.....
1622	Mrs. Meador.....	K-10.....	1893 Bored, 7-inch.....	do.....
1623	Mrs. M. E. Thomas.....	K-10.....	1880? do.....	Hand.....
1624	Mrs. Ella Pierce.....	K-10.....	1885? do.....	Artesian, hand.....
1625	J. F. Smith.....	K-10.....	1893 do.....	Artesian.....
1626	A. M. Costner.....	K-10.....	1899 Bored, 2-inch.....	72.00 .....
1627	J. A. Smith.....	L-10.....	1893 Bored, 6-inch.....	200.00 .....
1628	J. B. Alexander.....	L-10.....	1885 Bored, 7-inch.....	50.00 .....
1629	Mr. Johnson.....	K-10.....	Bored, 2-inch.....	do.....
1630	.....do.....	K-10.....	do.....	do.....
1631	H. D. Andrews.....	K-10.....	1901 Bored, 3-inch.....	150.00 .....
1632	J. A. Smith.....	L-10.....	1883 Bored, 4-inch.....	100.00 .....

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.		Depth of well.	Solids per 100,000.	Cost of well.	Method of lift.	Use of water.	Quantity of water.
						Feet.	Feet.						
1633	J. A. Smith	Los Coyotes	L-10	1893	Bored, 6-inch	48	48	200	Artesian	\$300.00	Irrigation	4	
1634	Sullivan estate	do	L-10	1895	Bored, 3-inch	48	48	300	do	160.00	Not used	..	
1635	do	do	L-10	1901	do	47	47	280	do	160.00	Irrigation	12	
1636	J. B. Monroe	do	L-10	1898	do	47	47	27	do	do	do	3	
1637	do	do	L-10	1898	do	47	47	27	do	79.75	do	1	
1638	do	do	L-9	1895	Bored, 7-inch	52	52	145	27	150.00	Domestic	Small	
1639	Mr. Pug Rhodes	do	L-10	1891?	Bored, 4-inch	48	48	140	26	do	do	Small	
1640	J. B. Teel	do	L-10	1897	Bored, 2-inch	48	48	200	27	60.00	Domestic; irrigation	Stock	
1641	do	do	L-10	1893	do	48	48	140	28	do	do	Stock	
1642	do	do	L-10	1895	Bored, 3-inch	46	46	600	35	do	do	Small	
1643	Mr. Zeus	do	M-10	1895?	Bored, 2-inch	49	49	170	28	do	do	Irrigation	4
1644	R. G. French	do	L-10	1897	do	49	49	140	27	do	37.50	Domestic	Small
1645	do	do	L-10	1898	Bored, 4-inch	49	49	140	26	do	160.00	Irrigation	1
1646	do	do	L-10	1897	Bored, 2-inch	49	49	140	27	do	37.50	Domestic	Small
1647	W. E. Doretty	do	L-9	1878	Bored, 7-inch	52	52	do	do	do	do	Small	
1648	J. R. Mitchell	do	M-9	1901	Bored, 3-inch	51	51	do	do	do	do	Irrigation	6
1649	do	do	M-10	do	Bored, 2-inch	51	51	do	do	do	do	do	4
1650	C. A. Hudgins	do	L-9	1891	do	58	58	90?	Hand, artesian	do	Domestic	Stock	
1651	do	do	L-9	1897?	do	57	57	335	Artesian	51	Stock	2	
1652	Dr. Crandall	do	L-9	1898	Bored, 7-inch	56	56	130	27	do	do	Small	
1653	T. M. Dillman	do	L-9	1893	Bored, 2-inch	54	54	108	25	65.00	Domestic	Stock	
1654	John Baker	do	L-9	1895?	Bored, 7-inch	56	56	114	Artesian	do	Stock	Small	
1655	A. L. Smith	do	L-9	1899	Bored, 2-inch	57	57	103	25	50.00	Domestic; stock	Stock	



## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Year completed.	Class of well.	Elevation of surface.		Depth of well.	Cost of well.	Cost of machinery.	Quantity of water.	Miner's inches.
					Feet.	Feet.					
1689	F. M. Schnabel	Los Coyotes	J-9	Bored, 2-inch	58	58	130	24	Artesian	\$75.00	Domestic; irrigation.
1690	Mr. Holingsworth	do	I-9	do	58	58	21	do	do	do	Not used.
1691	R. E. Dolley	do	I-9	1888? Bored, 7-inch	57	57	230?	25	do	500.00	Domestic.
1692	do	do	I-9	Bored, 2-inch	56	56	570	24	do	do	Irrigation.
1693	M. L. Black	do	J-9	do	53	53	do	23	do	do	Domestic.
1694	E. J. Collins	do	I-10	1873? Bored, 7-inch	do	do	do	25	Hand	do	do
1695	Frank Seppi	do	I-9	Bored, 2-inch	58	58	do	26	Artesian	do	Small.
1696	L. M. Moore	do	I-9	1897 do	58	57	156	26	Hand	do	do
1697	do	do	I-9	do	57	57	588	do	Artesian	do	Irrigation.
1698	Frank Seppi	do	I-9	1898 Bored, 4-inch	64	64	495	do	do	do	Small.
1699	A. W. Ellis	do	I-9	1891 Bored, 2-inch	57	56	220	23	Hand	do	Domestic.
1700	Artesia graveyard	do	I-9	1880? Bored, 7-inch	56	53	190	25	Wind	do	Irrigation.
1701	S. T. Corum	do	I-9	1880 Bored, 2-inch	54	54	200	28	Artesian	do	Domestic.
1702	J. Hay	do	I-9	Bored, 7-inch	53	53	do	do	do	do	Stock.
1703	C. D. Thompson	do	I-9	1884? do	56	56	121	28	Artesian, hand	do	Domestic.
1704	Mr. McFarland	do	H-10	1888? Bored, 4-inch	53	53	140	30	Hand	do	Stock.
1705	do	do	H-10	Bored, 3-inch	53	53	600	23	Artesian	do	Irrigation.
1706	John Zinn	Los Cerritos	H-10	1880? Bored, 4-inch	52	52	144	do	do	do	Stock.
1707	G. A. Brown	do	H-9	1895 Bored, 2-inch	56	56	128	30	Wind	800.00	Domestic.
1708	Jacob P. Thompson	do	H-9	1878? Bored, 7-inch	55	55	130	31	do	do	Small.
1709	do	do	H-9	1884 Bored, 4-inch	55	55	128	do	do	108.00	Not used.
1710	W. T. Gann	do	H-9	1898 Bored, 2-inch	608	23	Artesian	350.00	Domestic.	350.00	Small.

## WELLS IN DOWNEY QUADRANGLE.

1711	do	H-9	1888?	do	57	130	31	Hand	do	do	do	do
1712	Page estate	Los Coyotes	I-8	do	65	111	34	Artesian	Stock	Domestic	Domestic	Domestic
1713	S. T. Corum	do	H-8	Bored, 7-inch	68	68	34	Hand, artesian	do	do	do	do
1714	H. Vogt	do	I-8	Bored, 2-inch	68	104	33	do	do	do	do	do
1715	S. Holgate	do	I-8	Bored, 7-inch	65	59	177	32	do	do	do	do
1716	S. Washburn	do	I-8	do	63	63	120	Wind, artesian	\$150.00	do	do	do
1717	Chas. Young	do	I-9	1900	1900	120	Wind, artesian	66.00	\$150.00	do	do	do
1718	W. Dolly	do	I-9	1875?	Bored, 7-inch	63	277	26	do	do	do	do
1719	do	do	I-9	1898	Bored, 4-inch	61	120	Artesian	Stock	Domestic	Domestic	Domestic
1720	O. D. Thompson	do	I-9	1902	Bored, 2-inch	61	200	Wind	50.00	200.00	Stock	Stock
1721	do	do	I-9	1875?	Bored, 7-inch	61	200	Artesian, hand	do	do	do	do
1722	do	do	I-8	1878?	do	66	65	200	Artesian	Domestic	Domestic	Domestic
1723	J. Vance	do	I-9	1878	do	59	58	200	32	Hand	do	do
1724	J. F. Brown	do	I-9	1897	Bored, 2-inch	64	64	150	Artesian, wind	160.00	do	do
1725	Mr. McKinney	do	I-9	1902	Bored, 3-inch	62	62	153	25	Artesian	Stock	Stock
1726	do	do	I-9	1902	do	52	52	116	26	do	do	do
1727	do	do	I-9	1903	do	64	64	135	27	do	do	do
1728	do	do	I-9	1898	do	64	64	485	do	175.00	do	do
1729	Mr. Copeand	do	I-9	do	Bored, 2-inch	65	65	130	33	do	Domestic; irrigation	Small.
1730	H. W. White	do	J-9	1893	do	64	64	125?	26	do	do	do
1731	W. L. Coward	do	J-9	1900	Bored, 4-inch	62	190	23	do	80.00	Stock; irrigation	1
1732	do	do	J-9	1884	do	62	62	190	23	do	Domestic	Domestic
1733	Frank Gillespie	do	J-9	1887	Bored, 7-inch	57	200	24	do	125.00	do	do
1734	W. H. Matthews	do	J-9	1895?	Bored, 2-inch	51	51	86	22	do	Domestic; irrigation	Small.
1735	Chas. West	do	J-9	do	do	56	56	do	do	do	Irrigation	Small.
1736	do	do	J-9	do	do	55	55	25	do	do	Domestic	Domestic
1737	Chas. Young	do	J-10	1900	Bored, 3-inch	51	51	192	24	do	Irrigation	Small.
1738	Frank Leeper	do	J-8	1878?	Bored, 7-inch	65	65	163	24	Wind	Domestic; irrigation	Small.
1739	do	do	J-8	1902	Bored, 2-inch	66	66	117	24	Artesian	Stock	Stock
1740	F. W. Hackney	do	J-8	do	Bored, 7-inch	69	69	136	24	Wind	Irrigation	Small.
1741	do	do	J-8	do	Bored, 2-inch	59	59	123	Artesian	do	Domestic; irrigation	Small.
1742	J. W. Donovan	do	J-8	1888?	Bored, 4-inch	69	69	132	25	Horsepower, artesian	do	do

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Method of lift.	Cost of water.	Quantity of water.	Miner's inches.	
									Depth of well.	Solids per 100,000.
1743	J. W. Donovan.	Los Coyotes	J-8.	1895?	Bored, 2-inch	140?	Artesian.	Stock.	Small.	Small.
1744	McKinney & Searight.	do	J-8.	1885	Bored, 7-inch	72	70	23	Hand	Domestic.
1745	Mrs. A. M. Sproule.	do	I, J-8.	1878	do	70	130	24	Artesian.	Irrigation.
1746	do	do	J-8.	1899	Bored, 3-inch	67	67	do	do	Small.
1747	do	do	I-8.	1896	Bored, 2-inch	69	69	137	32	do
1748	W. L. Coward.	do	J-9.	1899	Bored, 3-inch	69	69	190	24	\$48.00
1749	H. Gotterba.	do	I-8.	1896	Bored, 2-inch	68	68	240	33	80.00
1750	W. C. Spronl.	do	I-8.	1873	Bored, 7-inch	69	69	20?	31	Artesian, hand.
1751	do	do	I-8.	1893	Bored, 2-inch	70	70	450	23	Hand, artesian.
1752	C. G. Bremond.	do	I-8.	1889	Bored, 4-inch	70	70	133	33	Artesian.
1753	D. J. Buehn.	do	I-8.	1876	Bored, 7-inch	68	68	185	Wind, artesian.	120.00
1754	Perris Moore.	do	I-8.	1903	Bored, 3-inch	do	do	172	31	Domestic.
1755	J. S. Eloit.	do	I-8.	1893	Bored, 2-inch	76	75	150	37	do
1756	Newriver school district.	do	I-7.	1898	do	83	82	105	42	do
1757	W. P. Tibbett.	do	I-7.	1883?	Bored, 4-inch	81	81	120	Hand, artesian.	do
1758	John McLawton.	do	I-7.	1900	do	80	80	126	37	do
1759	Mrs. Shienhart.	do	I-8.	1878?	Bored, 6-inch	51	51	120?	Artesian.	do
1760	Robert Sackett.	do	H-8.	1902	Bored, 12-inch	68	68	104	Gas.	do
1761	do	do	H-8.	1900	Bored, 2-inch	64	64	100	Hand, artesian.	165.00
1762	M. H. Holland.	do	I-8.	1884	Bored, 7-inch	73	73	130	Steam, artesian.	80.00
1763	W. B. Pendleton estate.	do	H-8.	1885	do	63	63	150	31	Irrigation.
1764	John McLawton.	Los Coyotes	H-7.	1888	Bored, 4-inch	77	77	120	Artesian.	Not used.
						41	Hand			Domestic.

1765	Steve Strong.....	do.....	I-8.....	Bored, 2-inch.....	77	76	Wind.....	Stock.....
1766	do.....	do.....	I-7.....	do.....	82	81	110? 43	Domestic.....
1767	S. Washburn.....	do.....	I-7.....	1885? Bored, 4-inch.....	83	81	100? 31	Small.
1768	E. Clark.....	do.....	I-8.....	Bored, 2-inch.....	76	76	130? 32	Small.
1769	Frank Coulon.....	do.....	I-7.....	1896 do.....	83	82	100? do.....	do.....
1770	do.....	do.....	I-7.....	1883? Bored, 3-inch.....	85	83	100 34	Domestic.....
1771	Mr. Thorn.....	do.....	I-7.....	1883? Bored, 7-inch.....	88	85	175 Hand, gas.....	Domestic; irrigation.
1772	Mrs. Strong.....	do.....	I-7.....	Bored, 2-inch.....	83	83	22 Artesian.....	Stock; irrigation.
1773	David Bullis.....	do.....	J-7.....	1903 do.....	86	110	Hand.....	Domestic.....
1774	Mrs. C. Burniller Hickey.	do.....	J-8.....	Bored, 7-inch.....	81	81	400.00	Small.
1775	Mr. Swagard.....	do.....	J-8.....	1890? Bored, 2-inch.....	76	150	29 Hand.....	do.....
1776	Geo. Heberle.....	do.....	J-8.....	Bored, 7-inch.....	81	67	50? 42 do.....	do.....
1777	W. F. Williamson.....	do.....	J-8.....	1883? do.....	69	69	140? 27 Artesian.....	do.....
1778	do.....	do.....	J-8.....	do.....	70	70	127 29 do.....	Stock.....
1779	C. Nottingham.....	do.....	J-8.....	1878 do.....	68	68	200 25 do.....	do.....
1780	Mrs. M. Evans.....	do.....	J-8.....	1885 do.....	67	67	180 26 do.....	do.....
1781	A. Nottingham.....	do.....	K-8.....	1901 Bored, 2-inch.....	69	69	762 do.....	do.....
1782	do.....	do.....	K-8.....	1895 do.....	70	70	386 22 do.....	do.....
1783	W. M. Allison.....	do.....	J-9.....	1885 Bored, 7-inch.....	62	62	260 23 Wind, artesian.....	Not used.
1784	do.....	do.....	J-9.....	1898 Bored, 3-inch.....	62	62	416 22 Artesian.....	Domestic.....
1785	do.....	do.....	J-9.....	1873 Bored, 7-inch.....	62	61	150 do.....	Stock.....
1786	Mrs. James.....	do.....	K-9.....	do.....	61	61	150 29 Hand.....	Not used.
1787	Mr. Porter.....	do.....	J-9.....	1880? do.....	58	58	400? 29 Artesian, wind.....	Domestic; stock.
1788	H. F. Drake.....	do.....	J-9.....	1902 Bored, 2-inch.....	60	60	629 20 Artesian.....	Irrigation.
1789	John Aultman.....	do.....	K-9.....	1894 do.....	58	58	190 do.....	Domestic.....
1790	Joe Clanton.....	do.....	K-9.....	1895 Bored, 7-inch.....	57	57	190 36 do.....	do.....
1791	J. F. Weaver.....	do.....	K-9.....	1898 Bored, 2-inch.....	58	58	612 20 do.....	350.00 Irrigation; domestic.
1792	H. F. Drake.....	do.....	K-9.....	1893 Bored, 7-inch.....	62	62	429 21 do.....	1,000.00 Stock.....
1793	do.....	do.....	K-9.....	1880 do.....	62	62	200 22 Artesian, wind.....	Domestic.....
1794	Mr. McGentis.....	do.....	K-9.....	1875 do.....	64	64	130 27 Hand.....	Small.
1795	J. G. Demman.....	do.....	K-9.....	1888 do.....	65	65	160 22 Wind, artesian.....	do.....
1796	do.....	do.....	K-9.....	1899 Bored, 2-inch.....	65	65	400 20 Artesian.....	Stock.....
1797	do.....	do.....	K-9.....	1874 Bored, 7-inch.....	68	67	312 24 Gas.....	400.00 Irrigation.....

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Method of lift.	Cost of well.	Cost of machinery.	Quantity of water.	Miner's inches.
1798	J. G. Denman	Los Coyotes	K-9	1899	Bored, 2-inch	68	408	21	Artesian	\$200.00+
1799	do	do	K-9	1898	Bored, 3-inch	68	379	20	do	200.00+
1800	do	do	K-9	1888	Bored, 7-inch	67	130	...	Wind, artesian	140.00
1801	J. W. Clanton	do	K-9	1896	Bored, 2-inch	66	155	25	do	60.00
1802	do	do	K-9	1896	do	66	365	21	Artesian	\$190.00
1803	do	do	K-9	1896	do	66	385	20	do	200.00
1804	J. W. Fowler	do	K-8	1894	do	67	400	20	do	225.00
1805	do	do	K-8	1895	Bored, 3-inch	67	385	...	do	300.00
1806	Mr. Brooks	do	K-8	1883	Bored, 7-inch	68	175	27	Artesian, hand	...
1807	C. Nottingham	do	K-8	1878?	do	73	175	27	Wind	300.00
1808	do	do	K-8	1897	Bored, 2-inch	71	71	719	Artesian	275.00
1809	do	do	K-8	1895	do	71	160	22	Wind, artesian	70.00
1810	J. L. Davee	do	K-8	1883	Bored, 6-inch	73	70	200*	Hand	...
1811	Jeff. Elliott	do	K-8	do	Bored, 2-inch	71	69	75	do	...
1812	do	do	K-8	do	do	72	580	21	do	...
1813	do	do	K-8	do	do	72	580	do	do	do
1814	M. Noble	do	K-8	1899	do	77	691	22	do	271.00
1815	do	do	K-8	1893	Bored, 7-inch	77	490	20	do	1,100.00
1816	do	do	K-8	1902	Bored, 2-inch	77	491	20	do	240.00
1817	J. T. Hallett	do	K-8	1894	do	73	300	21	do	...
1818	do	do	K-8	1885	Bored, 7-inch	73	100	do	100.00	...
1819	Theo Gillette	do	L-8	1893?	Bored, 2-inch	70	70	300*	Artesian, hand	...
1820	J. A. Smith	do	K-8	1895	do	65	150	26	Artesian	Small.

## WELLS IN DOWNEY QUADRANGLE.

Year	Owner	Date	Type	Depth		Diameter		Capacity		Use	Irrigation
				ft.	in.	ft.	in.	gpm	gpm		
1821	Augustus F. Sproul	do	K-9	1877	Bored, 7-inch	62	200	28	do	800.00	Domestic; irrigation.
1822	do	do	K-9	1897	Bored, 2-inch	64	64	385	21	do	Stock
1823	J. H. Gwin	do	K-9	1890?	do	64	64	150	23	do	Domestic
1824	C. Grimm	do	K-9	1900	do	62	62	422	27	do	do
1825	do	do	K-9	1901	do	62	62	75	do	55.00	Stock
1826	W. Ramp	do	K-9	1897	do	66	66	150	do	do	Domestic; irrigation.
1827	Simon Stifter	do	K-9	1891	do	64	64	100	27	do	Domestic
1828	T. L. Hungerford	do	L-9	1894	Bored, 4-inch	65	65	100	27	do	Domestic; irrigation.
1829	do	do	L-9	1899	Bored, 2-inch	63	63	80	29	do	Stock
1830	do	do	L-9	1894	do	65	65	100?	26	do	Irrigation
1831	Mrs. Law	do	L-9	1885?	Bored, 4-inch	61	60	25	Hand	do	Domestic
1832	James Wilson	do	L-9	1898	Bored, 2-inch	62	62	362	46	Artesian	Domestic; irrigation.
1833	Carmenita School	do	L-9	1895	do	67	67	365	48	do	Domestic
1834	H. H. Hungerford	do	L-9	1891	Bored, 4-inch	67	67	104	29	Hand	Domestic
1835	John Aten	do	L-9	1899	Bored, 2-inch	65	65	300?	25	do	Domestic; irrigation.
1836	Mr. Branscom	do	L-9	do	Bored, 3-inch	64	64	24	do	do	Irrigation
1837	do	do	L-9	do	Bored, 2-inch	64	64	do	Artesian	do	Small
1838	S. E. Samuel	do	L-8	1900	Bored, 3-inch	69	69	580	24	do	do
1839	do	do	L-8	1895	Bored, 2-inch	70	70	200	40	Hand	Domestic
1840	J. R. Mitchell	do	L-9	1897	do	65	65	265	47	Artesian	Domestic; irrigation.
1841	B. L. Hutchins	do	L-9	1897	Bored, 3-inch	61	61	400	31	do	Stock
1842	do	do	L-9	1889	Bored, 7-inch	do	do	80	do	do	Domestic; stock
1843	J. R. Morell	do	L-9	1896	Bored, 2-inch	61	61	344	53	do	Domestic; irrigation.
1845	Wm. Marriott	Los Cerritos	F-10	1899	do	57	57	661	32	do	Domestic
1846	L. B. Bronson	do	F-10	1903	Bored, 4-inch	57	57	111	23	do	Domestic
1847	W. Willard	do	E-10	1903	Bored, 7-inch	59	56	100	23	Not installed	Not used
1848	do	do	E-10	1903	Bored, 4-inch	59	56	77	do	65.45	Domestic
1849	do	do	E, F-10	1903	Bored, 2-inch	58	56	90	25	Hand	Irrigation
1850	F. A. Bronson	do	F-10	1902	do	59	60	135	23	Gas, artesian	*500.00
1851	do	do	F-10	1897	do	59	59	341	28	Artesian	110.00
											Domestic; irrigation. <sup>2</sup>

Wells in the Downey quadrangle—Continued

108 UNDERGROUND WATERS, SOUTHERN CALIFORNIA—II. [NO. 138.]

Number of well.	Owner.	Location.	Map location.	Year completed.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Cost of well.	Method of lift.	Cost of well.	Quantity of water.			
												Feet.	Feet.	Miner's inches.	
1852	J. B. Bean.	Los Coyotes	E-10	1888?	Bored, 4-inch	60	640	.....	.....	Artesian.	.....	Domestic.	.....	Small.	
1853	H. W. McKelvy	do	E-9	Bored, 2-inch	60	400	24	do	.....	do	.....	Stock.	.....	4	
1854	do	do	F-9, 10	do	60	400	27	do	.....	Domestic	.....	Stock.	.....	Small.	
1855	Mrs. Hale	do	E-9	do	60	400	29	do	.....	do	.....	Irrigation	.....	4	
1856	Ed. German	do	E-9	do	61	400?	29	do	.....	do	.....	Domestic, irrigation.	.....	Small.	
1857	do	do	E-9	Bored, 5-inch	61	400?	do	do	.....	do	.....	Irrigation	.....	4	
1858	do	do	E-9	Bored, 2-inch	61	400	27	do	.....	do	.....	Domestic, irrigation.	.....	Small.	
1859	Frank Mott	do	F-9	1899	do	61	350	28	do	.....	do	.....	Irrigation	.....	4
1860	do	do	F-9	1899	do	61	350	27	do	.....	do	.....	Domestic	.....	3
1861	A. A. Lewis	do	F-9	1887	do	61	528	27	do	.....	do	.....	Stock	.....	Small.
1862	do	do	F-9	1897	do	61	525	28	do	.....	do	.....	Stock; irrigation	.....	Stock.
1863	do	do	F-9	1897	do	61	525	25	do	.....	do	.....	Stock	.....	Stock.
1864	do	do	F-9	1899	do	61	525	28	do	.....	do	.....	Domestic	.....	3
1865	J. D. Fredericks	do	F-9	1897	do	61	150	26	Wind	.....	\$75.00	.....	Stock	.....	Small.
1866	do	do	F-9	1897	do	61	150	25	Artesian.	.....	150.00	.....	Domestic; stock	.....	Domestic.
1867	E. F. Gaines	do	F-9	1900	do	61	250	25	do	.....	150.00	.....	Stock	.....	Small.
1868	do	do	F-9	1900	do	61	250	24	do	.....	150.00	.....	Domestic	.....	Irrigation
1869	do	do	F-9	1900	do	61	250	23	do	.....	150.00	.....	Domestic	.....	2
1870	J. A. Wooley	do	F-9	1898	Bored, 2½-inch	61	240	25	Artesian, wind.	.....	60.00	.....	Not used	.....	5
1871	do	do	F-9	1898	Bored, 2-inch	61	590	29	Artesian.	.....	do	.....	Domestic, irrigation.	.....	Small.
1872	W. F. Harding	do	F-9	1901?	do	60	250?	25	do	.....	do	.....	Stock	.....	Small.
1873	Mrs. Sweeney	do	F-9	1899?	do	57	64	25	do	.....	do	.....	Stock	.....	Small.

1874	L. S. Kirkpatrick	do.	F-9	1900	do	57	64	24	Wind	25.00	
1875	J. R. & W. A. Clark	do.	F-9	1902	Bored, 10-inch	62	62	24	Artesian	1,306.50	Irrigation.
1876	do	do	F-9	1897	Bored, 7-inch	62	62	24	do	do	Stock; irrigation
1877	do	do	G-10	1901	Bored, 12-inch	61	61	802	24	1,500.00+	Irrigation.
1878	do	do	G-10	1895	Bored, 2-inch	61	61	640	24	do	Domestic
1879	do	do	G-8	1890?	Bored, 7-inch	61	61	250?	24	do	Stock
1880	do	do	G-10	1890	do	61	61	230?	24	do	Small.
1881	do	do	G-10	1899	Bored, 10-inch	57	57	645	24	do	Small.
1882	do	do	G-10	1896	Bored, 2-inch	56	56	250	25	do	Domestic
1883	do	do	G-10	1894	do	52	52	250	24	do	Small.
1884	R. T. Neely	do.	G-9	do	do	62	62	25	do	62.50	do
1885	R. L. Andrews	do.	G-9	1899	do	62	62	14?	24	Wind, artesian.	50.00
1886	John Gessford	do.	G-9	1898	Bored, 4-inch	63	63	450?	25	Artesian	do
1887	do	do	G-9	1901	Bored, 12-inch	64	64	450	do	Gas	\$500.00
1888	Jothan Bixby	do.	G-9	1894	Bored, 4-inch	61	61	150	25	Artesian, hand	1,000.00
1889	do	do	G-9	1898	Bored, 10-inch	60	60	640	25	Artesian	1,500.00
1890	do	do	G-9	1896	Bored, 7-inch	61	61	680	25	do	1,500.00
1891	do	do	H-8	1900	Bored, 10-inch	70	70	680	25	do	1,500.00
1892	do	do	G-9	1897	Bored, 2-inch	61	61	600	24	do	Domestic
1893	do	do	H-8	1895	do	66	66	150?	26	do	Stock
1894	do	do	H-8	do	Bored, 7-inch	62	62	150	34	do	Domestic
1895	J. W. Furnivall	do.	H-8	1900	Bored, 2-inch	67	67	165	27	do	Small.
1896	T. Gregory	do.	G-9	1873?	Bored, 7-inch	65	65	140	25	do	Domestic
1897	do	do	G-9	1900	Bored, 2-inch	65	65	150	25	do	Stock
1898	W. A. Reeves	do.	G-9	1899	do	66	66	135	24	do	Domestic
1899	Mrs. Mary Dougherty	do.	G-9	1899	do	67	67	160?	24	do	Small.
1900	A. Meissen	do.	G-8	1903	do	71	71	145	23	do	Domestic; stock
1901	D. Henderson	do.	G-8	1899	do	71	71	140	25	do	Stock
1902	W. Walton	do.	G-8	1893	Bored, 7-inch	70	70	160	25	do	Not used
1903	do	do	G-8	1896	Bored, 2-inch	71	71	140	do	do	do
1904	do	do	G-8	1896	do	71	71	150	do	do	do
1905	D. Henderson	do.	G-8	1891	Bored, 7-inch	70	70	170	25	Artesian, wind	255.00
1906	do	do	G-8	1896	Bored, 2-inch	69	69	200	25	Artesian	80.00
1907	Mrs. Peterson	do.	G-8	do	do	73	73	140	26	do	do
1908	Mr. Sharpe	do.	G-8	do	do	75	75	do	24	do	do

## Wells in the Downey quadrangle—Continued.

Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.		Elevation of water.		Use of water.		Quantity of water.	Miner's inches.
					Feet.	Feet.	Feet.	Feet.	Stock.	Domestic; stock.		
1909 Mr. Wright.....	Los Cerritos.....	G-8.....	1900	Bored, 2-inch.....	72	72	150	24	Artesian.....	\$50.00	.....	Small.
1910 T. Gregory.....	do.....	G-9.....	1894	do.....	69	69	140	24	do.....	200.00	.....	Small.
1911 do.....	do.....	G-9.....	1897	do.....	69	69	62 <sup>5</sup>	do.....	do.....	200.00	.....	Not used.....
1912 do.....	do.....	G-9.....	1897	do.....	69	69	62 <sup>5</sup>	do.....	do.....	do.....	.....	.....
1913 W. D. Thorn.....	do.....	F-9.....	1896	do.....	69	69	150	do.....	Stock.....	.....	.....	Small.
1914 John Newton.....	do.....	G-8.....	1899	do.....	71	71	13 <sup>0</sup>	do.....	Stock.....	.....	.....	3
1915 A. Meissen.....	do.....	F-8.....	1899	do.....	71	71	118	do.....	Domestic; irrigation.	58.00	.....	Domestic; stock.
1916 do.....	do.....	F-8.....	1900	do.....	71	71	165	25	do.....	66.00	.....	Domestic.....
1917 do.....	do.....	F-8.....	1902	Bored, 7-inch.....	72	72	128	do.....	do.....	128.00	.....	Irrigation.....
1918 Mr. Sudor.....	do.....	G-8.....	1900	Bored, 2-inch.....	72	72	135	25	do.....	54.00	.....	Stock.....
1919 Doctor McBurney .....	do.....	G-8.....	1899	do.....	72	72	140	25	do.....	do.....	.....	2
1920 do.....	do.....	G-8.....	1899	do.....	73	73	25	do.....	do.....	do.....	.....	Small.
1921 T. Gregory.....	do.....	F-8.....	1898	do.....	73	73	140	do.....	do.....	56.00	.....	Small.
1922 Mrs. L. H. Germain .....	do.....	F-8.....	1899	do.....	73	73	144	25	do.....	do.....	.....	2
1923 do.....	do.....	F-8.....	1898	do.....	73	73	149	25	do.....	59.60	.....	Domestic.....
1924 do.....	do.....	F-8.....	1898	do.....	73	73	152	do.....	Gas, artesian.....	60.80	.....	Not used.....
1925 Mrs. Stella Meissen .....	do.....	G-8.....	do.....	do.....	74	74	25	Artesian.....	do.....	do.....	.....	2
1926 E. A. Keller.....	do.....	F-8.....	1895	do.....	75	75	177	24	Artesian, hand.....	80.00	.....	Domestic.....
1927 Miss O'Connor.....	do.....	F-8.....	1898	do.....	76	76	250	23	do.....	80.00	.....	Irrigation.....
1928 Mr. Peterson?	do.....	G-8.....	do.....	do.....	76	76	24	do.....	Stock.....	.....	.....	Small.
1929 P. P. Donlay.....	do.....	G-8.....	1887?	do.....	78	78	160	Hand.....	Domestic.....	.....	.....	Small.
1930 do.....	do.....	G-8.....	do.....	Bored, 7-inch.....	79	79	160	do.....	do.....	do.....	.....	.....
1931 T. F. Downs.....	do.....	F-8.....	1902	Bored 2-inch.....	78	78	150?	22	Wind.....	136.75	\$228.00	do.....



## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.		Depth of well.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	Feet.					
1968	Wm. Newton	Los Coyotes	L-8	1891	Bored, 2-inch.....	83	83	72½	24	Artesian.....	\$253.00	Domestic; irrigation.
1969	J. M. Frazer	do	L-8	do	Bored, 3-inch.....	81	81	830	31	do	.....	Stock.....
1970	do	do	L-8	do	Bored, 4-inch.....	81	81	550	40	do	.....	do
1971	E. Thowson	do	L-7	1898	Bored, 2-inch.....	85	78	57	32	Hand	.....	do
1972	John Baker	do	L-7	1898	Bored, 7-inch.....	87	87	115?	39	do	.....	Domestic.....
1973	J. Hualde	do	K, L-7	1891	Bored, 7-inch.....	92	92	11½	Wind	.....	.....	Domestic; stock.....
1974	J. W. Inman	do	K-7	1891	do.....	91	86	10½	38	do	.....	Stock; irrigation.....
1975	do	do	K-7	1897	Bored, 2-inch.....	95	95	67½	Artesian.....	200.00	.....	do
1976	John Baker	do	K-7	1897	do.....	88	86	70	45	Wind	25.00	Stock.....
1977	A. W. Sunbeck	do	K-7	1890	Bored, 7-inch.....	88	82	8½	57	do	85.00	Domestic.....
1978	do	do	K-7	1897	Bored, 2-inch.....	85	83	80	49	Hand	40.00	Stock.....
1979	D. Mabry	do	K-7	1895?	do.....	89	90	55	do	.....	45.00	Domestic.....
1980	L. M. McConnell	do	K-8	1895	do.....	79	79	92	47	do	.....	do
1981	Geo. W. Wardell	do	K-8	1902	do.....	79	79	47½	25	Artesian.....	190.00	Irrigation.....
1982	do	do	K-8	1900	do.....	79	75	76	37	Hand	37.50	Domestic.....
1983	S. Wardell	do	L-8	do	.....	79	79	650	26	Artesian.....	.....	Stock.....
1984	W. H. Miller	do	K-8	1903	do.....	80	80	8½	Gas	.....	230.00	Irrigation.....
1985	H. E. Belfield	do	L-8	1899	do.....	73	73	56½	25	Artesian.....	200.00	Domestic.....
1986	do	do	L-8	1896	do.....	72	72	300	25	do	175.00	do
1987	do	do	L-8	do	Bored, 4-inch.....	71	71	7½	37	Wind	.....	do
1988	W. Hungerford	do	L-8, 9	1873?	Bored, 7-inch.....	70	70	400	32	Artesian.....	.....	Domestic; stock.....
1989	J. R. Mitchell	do	L-8	1878	do.....	69	68	180	31	Hand	.....	Stock.....
1990	do	do	L-8, 9	1900	Bored, 3-inch.....	67	67	600	Artesian.....	275.00	.....	Irrigation.....



## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface feet.	Depth of well.	Solids per 100,000.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water, inches. 1
2023	S. Forbes	Los Coyotes	M-8	1898?	Bored, 2-inch.....	72	72	600	31	Artesian.....	Domestic; irriga- tion.	Domestic; irriga- tion.
2024	J. W. Brown	do	M-8	1899	do '.....	73	71	90	45	Hand.....	Domestic.....	Domestic.....
2025	B. W. Hutchinson	do	M-8	1897	do .....	73	63	92	36	do .....	do .....	do .....
2026	do	do	M-8	1899	Hydraulic, 2-inch.....	74	74	526	Artesian.....	225.00	Irrigation; stock	6
2027	J. W. Brown	do	M-8	1899	Bored, 2-inch.....	72	67	61	61	Hand.....	Stock.....	Stock.....
2028	J. S. Copeland	do	M-7, 8	do	do .....	95	95	600?	44	Artesian.....	Domestic.....	Domestic.....
2029	do	do	M-7	1894?	Bored, 10-inch.....	93	93	750?	43	Gas.....	Stock.....	Stock.....
2030	Mr. McNally	do	M-8	1894	Bored, 8-inch.....	97	97	441	35	Gas, artesian ..	\$35.00 + \$1,300.00	Irrigation; do- mestic.
2031	do	do	M-7	1894	Bored, 7-inch.....	133	133	480	.....	.....	212.50 +	.....
2032	do	do	M-7	do	Bored, 8-inch.....	.....	.....	500	.....	Gas.....	Irrigation.....	Irrigation.....
2033	do	do	N-6	1894?	Bored, 10-inch.....	.....	.....	634	.....	.....	Not used.....	Not used.....
2034	do	do	M-7	1895	do .....	152	152	609	.....	Gas, artesian ..	1,200.00	Irrigation.....
2035	do	do	M-7	1900	do .....	135	135	680	98	Artesian.....	.....	.....
2036	C. Underwood	do	M-6	do	Bored, 7-inch.....	125	125	193	.....	do .....	Domestic; stock	Domestic; stock
2037	do	do	M-6, 7	1897	do .....	125	125	450	56	do .....	do .....	do .....
2038	Geo. B. Reebe	do	M-7	1895?	Bored, 2-inch.....	100	100	500?	45	Hand.....	Domestic.....	Domestic.....
2039	do	do	L-6, 7	1900	Bored, 3-inch.....	80	80	815	85	Artesian.....	Irrigation.....	Irrigation.....
2040	do	do	L-6, 7	1900	do .....	80	80	813	78	do .....	do .....	do .....
2041	H. B. Hawk	do	M-7	do	Bored, 2-inch.....	125	125	400?	.....	Wind.....	do .....	do .....
2042	do	do	M-7	1894	Bored, 7-inch.....	125	108	415	.....	do .....	do .....	do .....
2043	do	do	M-7	do	Bored, 10-inch.....	105	104	400?	36	Gas.....	1,000.00	Irrigation; do- mestic.



## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.		Depth of well.	Solids per 100,000.	Cost of machinery.	Use of water.	Quantity of water.	Miner's inches.
						Method of lift.	Feet.						
2077	E. Wickman	Santa Gertrudis	K-5	1898	Dug, 3 by 4 foot.	35	Wind.	35	27	\$70.00	Domestic.	do	do
2078	Railroad station	do	K-5	1897	Bored, 4-inch.	158	80	128	47	45.00	Domestic; stock.	do	do
2079	W. B. Ellis	do	K-5	1900	Driven, 3½-inch.	164	130	130	do	50.00	Domestic.	do	do
2080	Mr. Hollenbeck	do	K-4	1900	Dug, 4-foot diameter.	162	130	35	63	125.00	Domestic.	do	do
2081	C. H. Girdlestone, agent	do	K-5	do	Bored, 7-inch.	157	127	190	29	do	do	do	do
2082	Frank Groves	do	K-5	do	Dug, 4 by 4 foot.	159	134	28	do	do	do	do	do
2083	C. H. Girdlestone, agent	do	K-5	1874	Bored, 7-inch.	159	134	300	75	do	do	do	do
2084	do	do	K-5	do	do	159	142	300	81	do	do	do	do
2085	J. W. Weaver	do	J, K-4	1902	Dug, 3½-foot diameter.	159	132	30	53	40.00	Domestic.	do	do
2086	C. C. Mason	do	K-5	1888	Bored, 7-inch.	159	134	52	80	105.00	Domestic.	do	do
2087	do	do	K-4	1888	do	159	134	85	do	170.00	Domestic; stock.	do	do
2088	Mrs. L. Hein	do	J-5	1903	Dug, 2-foot diameter.	155	128	30	66	52.50	Domestic.	do	do
2089	J. M. Ellis	do	K-5	1893	Dug, 4-foot diameter.	156	128	31	94	do	do	do	do
2090	O. Blanchard	do	K-5	do	Dug, 2-foot diameter.	168	136	36	Wind.	50.00	do	do	do
2091	C. W. Duncan	do	K-5	1891	Bored, 2-inch.	168	138	127	41	do	do	do	do
2092	J. S. Buckbee	do	K-5	1899	Dug, 3½-foot diameter.	166	132	37	38	40.00	Domestic.	do	do
2093	John S. Baker	do	K-5	do	Bored, 7-inch.	150	118	108	39	125.00	Domestic.	do	do
2094	C. Palm	do	K-5	1896	Bored, 2-inch.	161	160	275	62	do	do	do	do
2095	P. Bedler	do	J-5	1895?	do	140	105	31	do	50.00	Domestic.	do	do



## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.		Depth of well.	Soil per 100,000.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.	Miner's inches.	
						Feet.	Feet.								
2129	J. Watson	Santa Gertrudis	J-6	Bored, 2-inch.....	108	40	Hand.....	165	40	Domestic.....	.....	.....	.....	.....	.....
2130	W. W. McElhinney	do	J-6	Bored, 4-inch.....	109	101	Wind.....	312	25	do	.....	.....	.....	.....	.....
2131	W. W. Orr	do	J-6	Bored, 7-inch.....	118	109	50	46	do	\$32.00	\$100.00	Stock.....	.....	.....	
2132	do	do	J-6	do.....	117	107	50	62	do	50.00	.....	Domestic.....	.....	.....	
2133	C. E. O'Connor	do	J-6	Bored, 2-inch.....	122	72	91	do	.....	23.00	270.00	do	.....	.....	
2134	do	do	J-5	Bored, 12-inch.....	122	114	109	.....	.....	170.00	.....	Not used.....	.....	.....	
2135	J. D. Crawford	do	J-5	Bored, 4-inch.....	128	116	62	102	Wind	.....	.....	Domestic.....	.....	.....	
2136	S. J. Lovell	do	J-5	Dug, 4 by 4 foot.....	124	117	10	96	Hand	.....	.....	do	.....	.....	
2137	O. Newlan	do	I-5	Bored, 4-inch.....	127	35	80	do	.....	.....	.....	do	.....	.....	
2138	R. H. Haddock	do	I-5	Bored, 12-inch.....	129	118	96	59	Gas.....	180.00	600.00	Irrigation.....	.....	.....	
2139	D. E. Haddock	do	I-5	Bored, 2-inch.....	131	118	57	61	Hand	.....	.....	Domestic.....	.....	.....	
2140	J. F. Moore	do	I-5	Bored, 5-inch.....	130	118	44	52	do	38.00	.....	do	.....	.....	
2141	L. W. Houghton	do	I-4	Bored, 2-inch.....	130	118	60	40	do	.....	.....	do	.....	.....	
2142	do	do	I-4	Bored, 12-inch.....	129	.....	50	.....	Gas?	75.00	.....	Irrigation.....	.....	.....	
2143	do	do	I-4	Bored, 10-inch.....	129	129	775	23	Gas, artesian..	2,000.00	1,625.00	do	.....	.....	
2144	W. W. Orr	do	J-4	Bored, 8-inch.....	141	132	36	50	Wind	35.00	200.00	Stock.....	.....	.....	
2145	Mrs. Carey	do	J-4	do.....	141	131	44	51	do	.....	.....	Domestic.....	.....	.....	
2146	L. W. Houghton	do	I, J-4	Dug, 4 by 4 foot.....	133	121	16	32	Hand	.....	.....	do	.....	.....	
2147	J. C. Dashell	do	I-5	1896? Bored, 2-inch.....	122	112	51	55	Wind	50.00	200.00	Stock; domestic.....	.....	.....	
2148	Mr. Schendoney	do	I-5	Bored, 3-inch.....	120	.....	55	78	do	.....	.....	Domestic.....	.....	.....	
2149	L. W. Houghton	do	L-5	Bored, 5-inch.....	119	107	57	39	Hand	51.30	.....	do	.....	.....	
2150	do	do	I-5	Driven, 4-inch.....	116	104	34	40	Wind	210.00	.....	do	.....	.....	
2151	Mr. Glasselle	do	I-5	Bored, 5-inch.....	114	104	63	57	do	.....	.....	do	.....	.....	

2152	L. W. Houghton	do	I-5.....	1890	Bored, 4-inch.....	104	54	57	do.....	40.00	150.00	do.....	
2153	B. M. Moore	do	I-5.....	1903	do.....	118	106	63	do.....	56.70	do.....	do.....	
2154	Mrs. F. A. Haddock	do	I-5.....	1890?	Bored, 8-inch.....	121	115	300?	28.....	150.00	150.00	do.....	
2155	J. N. Newlan	do	I-5.....	188-	Bored, 4-inch.....	120	110	45?	75.....	do.....	do.....	do.....	
2156	H. W. Beest	do	J-5.....	188-	do.....	122	111	50	42.....	do.....	do.....	do.....	
2157	J. N. Newlan	do	I-5.....	1880	Bored, 2-inch.....	117	50	do.....	do.....	Stock.....	do.....	do.....	
2158	do.....	do	I-6.....	1900	Dug, 3 by 3 foot .....	117	97	13	do.....	do.....	do.....	Domestic.....	
2159	Frank Irish	do	J-6.....	1892	Bored, 8-inch.....	107	99	64	54.....	Wind.....	42.50	150.00	do.....
2160	L. J. Bever	do	J-6.....	1902	Bored, 5-inch.....	105	97	50	73.....	do.....	Stock.....	do.....	
2161	R. W. Hill	do	I-6.....	1899	Bored, 3-inch.....	104	97	75	37.....	Hand.....	do.....	Domestic.....	
2162	J. A. Worthen	do	I-6.....	do.....	Bored, 2-inch.....	105	98	80?	37.....	Wind.....	do.....	do.....	
2163	W. W. Clemons	do	I-6.....	1890	Bored, 4-inch.....	102	62	47	do.....	do.....	do.....	do.....	
2164	E. J. Hill	do	I-6.....	1888	do.....	102	98	62	50.....	Hand.....	40.00	Irrigation.....	
2165	do.....	do	I-6.....	1902	Bored, 12-inch.....	102	98	87	do.....	Gas.....	175.00	1,000.00	do.....
2166	Chas. Emery	do	I-6.....	1888	Driven, 2-inch.....	101	26?	do.....	Hand.....	do.....	do.....	Domestic.....	
2167	Morton Bros	do	I-6.....	do.....	do.....	102	30	45	do.....	do.....	do.....	do.....	
2168	J. K. Brenizer	do	I-5.....	1882	Bored, 4-inch.....	110	100	63	52.....	do.....	Stock.....	do.....	
2169	do.....	do	I-5.....	1902	Dug, 4 by 4 foot.....	110	100	14	200+	do.....	do.....	Irrigation.....	
2170	Chas. Collins	do	I-6.....	1903	Bored, 12-inch.....	108	98	25?	28.....	Gas.....	474.00	2,120.00	do.....
2171	do.....	do	I-6.....	1903	do.....	108	98	241	do.....	do.....	482.00	do.....	do.....
2172	do.....	do	I-6.....	1879?	Bored, 7-inch.....	106	95	125	40.....	Wind.....	do.....	do.....	Domestic.....
2173	A. Pilkington	do	I-5, 6.....	1900	Bored, 4-inch.....	108	98	70	50.....	Hand.....	do.....	do.....	do.....
2174	H. D. Kinney	do	I-5.....	1889?	do.....	108	62	54	do.....	do.....	32.00	do.....	do.....
2175	N. T. Cowan	do	I-6.....	1900	do.....	108	64	47	do.....	do.....	do.....	do.....	do.....
2176	E. C. White	do	I-6.....	1895?	Bored, 2-inch.....	107	42?	45	do.....	do.....	65.00	do.....	do.....
2177	N. H. Hughes	do	I-6.....	1895	Bored, 4-inch.....	105	95	80	41.....	Hand.....	do.....	do.....	do.....
2178	M. Long	do	I-6.....	do.....	Driven, 2-inch.....	105	20	56	do.....	do.....	Stock.....	do.....	do.....
2179	do.....	do	I-6.....	do.....	Dug, 3 by 4 foot.....	105	12	140	do.....	do.....	do.....	do.....	do.....
2180	Geo. A. Smith	do	I-6.....	1902	Bored, 2-inch.....	105	68	67	do.....	do.....	Stock.....	do.....	do.....
2181	J. P. Green	do	I-6.....	1883	Dug, 2 by 3 foot .....	102	95	10	111	Hand.....	do.....	do.....	do.....
2182	do.....	do	I-6.....	1900	do.....	101	95	10	69	do.....	do.....	do.....	do.....
2183	M. A. Murphy	do	I-6.....	1901	Bored, 2-inch.....	98	69?	47	do.....	do.....	do.....	do.....	do.....
2184	P. Benson	do	H-6.....	do.....	Bore l. 4-inch.....	97	93	79	48	do.....	do.....	do.....	Irrigation.....
2185	G. M. Clark	do	I-6.....	1902	Bored, 12-inch.....	99	93	108	do.....	Gas.....	200.00	1,000.00	do.....
2186	do.....	do	I-6.....	1880	Bored, 4-inch.....	98	62	61	Wind.....	do.....	40.00	do.....	Domestic.....

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Cost of well.	Cost of machinery.	Quantity of water.	Miner's inches.				
												Solids per 100,000.	Method of lift.	Feet.	Feet.	Feet.
2187	Chas. Rodger	Santa Gertrudis	I-6.....	1884	Bored, 4-inch.....	96	96	296	28	Artesian.....	\$400.00	Stock; domestic.	Small.			
2188	Theo. Foster	do	I-7.....	1883	Bored, 7-inch.....	96	96	275	26	Artesian, hand.....	700.00	Domestic.				
2189	Mr. Isabel	do	I-7.....	1903	Bored, 5-inch.....	92	87	98	56	Hand.....		Stock.....				
2190	J. V. Dilley	Los Coyotes	I-7.....	1885	Bored, 7-inch.....	87	90	311	24	Artesian.....	400.00	Domestic; stock.	Small.			
2191	do	do	J-7.....	1883?	do.....	93	90	160	.....	.....	175.00	Stock.....				
2192	do	do	J-7.....	1875	do.....	96	96	280	27	Wind.....	800.00	\$113.00	Domestic.			
2193	do	do	J-7.....	1902	Bored, 2-inch.....	94	94	260	26	Artesian.....	200.00	Stock.....	Small.			
2194	Mrs. E. Baker	Santa Gertrudis	I-6.....	1895	do.....	100	90	61	Wind.....	.....	1,050.00	Domestic.				
2195	S. Baker	do	J-6.....	1888	Bored, 8-inch.....	100	100	350	28	.....	2,200.00	do.....	do.....			
2196	Atwood Sprout	Los Coyotes	J-6.....	1875	Bored, 7-inch.....	99	99	457	26	Artesian.....	.....	Boilers?				
2197	Union Oil Co.	do	J-7.....	1902	Bored, 4-inch.....	98	87	87	35	.....	.....	Stock.....	Small.			
2198	A. Sproul	do	J-7.....	1870?	Bored, 7-inch.....	97	86	250	37	Wind.....	.....	Boilers?				
2199	Railroad station	do	J-7.....	1903	Bored, 9½-inch.....	98	86	118	47	Not installed.....	215.00	Stock.....				
2200	A. R. Sebastian	do	J-7.....	1901	Bored, 2-inch.....	98	86	97	42	Wind.....	35.00	200.00	Domestic.			
2201	E. P. Pruitt	do	J-7.....	1900	do.....	98	86	108	48	do.....	55.00	145.00	do.....			
2202	Belle-Vernon Farms Co.	do	J-7.....	1891	Bored, 4-inch.....	95	.....	100	43	Hand.....	100.00	.....	do.....			
2203	H. G. Borroughs	do	J-7.....	1901	Bored, 2-inch.....	95	84	110	42	Wind.....	55.00	125.00	do.....			
2204	M. D. Fraser	do	J-7.....	1902	Bored, 4-inch.....	95	83	104	.....	do.....	82.00	250.00	do.....			
2205	W. Waymayer	do	J-7.....	1895?	Bored, 2-inch.....	94	.....	22	do.....	.....	.....	.....	.....			
2206	W. H. Smith	do	J-7.....	1902	do.....	94	.....	100	40	do.....	50.00	240.00	do.....			
2207	J. Seabridge	do	J-7.....	1901	do.....	93	81	100	40	do.....	55.00	.....	do.....			
2208	J. J. Blair	do	J-7.....	1903	do.....	93	82	98	41	do.....	44.00	125.00	do.....			
2209	J. Haddock	do	J-7.....	1901	do.....	92	81	110	41	do.....	45.00	.....	do.....			



## 122 UNDERGROUND WATERS, SOUTHERN CALIFORNIA—II. [NO. 138.

## Wells in the Downey quadrangle—Continued.

Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.		
												Method of lift.	Feet.	Feet.
2245 N. Davie .....	Santa Gertrudis .....	H-7.....	1893	Dug, 3 by 4 foot .....	80	74	10	62	Hand .....	.....	.....	Domestic .....	.....	.....
2246 F. Fleming .....	do .....	H-7.....	1902	Bored, 4-inch .....	75	72	124	34	do .....	\$104.00	.....	do .....	.....	.....
2247 C. Blythe .....	Los Coyotes .....	H-8.....	1903	Bored, 2-inch .....	74	73	104	34	do .....	47.00	.....	do .....	.....	.....
2248 do .....	do .....	H-8.....	1898	do .....	73	73	103	32	Artesian .....	.....	.....	Stock .....	.....	Small.
2249 Wm. Gregory .....	do .....	H-8.....	1894	do .....	74	74	150	29	Wind .....	90.00	.....	Domestic .....	.....	.....
2250 do .....	do .....	H-8.....	1898	Bored, 7-inch .....	73	73	100	.....	Gas? .....	150.00	\$85.00	Irrigation .....	.....	.....
2251 Mr. Hess .....	Los Cerritos .....	G-8.....	1888?	Bored, 4-inch .....	77	74	126	30	Hand .....	.....	.....	Domestic; stock .....	.....	.....
2252 Moyse & Weaver .....	do .....	G-7.....	1888	Bored, 5-inch .....	81	81	120	29	Artesian .....	.....	.....	Stock .....	.....	.....
2253 James E. Hagar .....	do .....	G-8.....	1887?	Bored, 4-inch .....	81	.....	80	21	Hand .....	.....	.....	Domestic .....	.....	.....
2254 do .....	do .....	G-7.....	1888	Bored, 7-inch .....	82	77	210	26	Wind, gas .....	200.00	640.00	Irrigation .....	.....	.....
2255 Mrs. Wyes .....	Los Coyotes .....	G-7.....	1887?	Bored, 4-inch .....	83	.....	92	24	Wind .....	.....	.....	Domestic .....	.....	.....
2256 Moyse & Weaver .....	Los Cerritos .....	G-7.....	1901	Bored, 6-inch .....	85	.....	111	28	do .....	.....	.....	do .....	.....	.....
2257 do .....	do .....	G-7.....	1902	Bored, 12-inch .....	86	89	567	26	Artesian, gas .....	1,556.00	1,356.00	Irrigation .....	+ 50	.....
2258 P. O'Connor .....	do .....	G-7.....	1901	Bored, 2-inch .....	86	83	137	29	Wind .....	61.50	.....	Domestic .....	.....	.....
2259 do .....	do .....	G-7.....	1897	Bored, 10-inch .....	88	84	172	.....	Gas .....	350.00	700.00	Irrigation .....	40	.....
2260 J. R. Cooke .....	do .....	G-7.....	1876?	Bored, 7-inch .....	85	82	456	25	Hand .....	1,500.00	.....	Domestic; stock .....	.....	.....
2261 R. Casey .....	do .....	G-7.....	1901	Bored, 2-inch .....	88	.....	90	27	do .....	.....	52.00	Stock .....	.....	.....
2262 H. T. Porter .....	Santa Gertrudis .....	G-7.....	1897?	do .....	90	.....	116	30	do .....	.....	.....	Domestic .....	.....	.....
2263 W. T. Strawbridge .....	do .....	G-7.....	1893?	Bored, 4-inch .....	90	.....	120	29	do .....	.....	.....	do .....	.....	.....
2264 do .....	do .....	G-7.....	1898	Bored, 10-inch .....	91	86	196	.....	Gas .....	.....	.....	Irrigation .....	+ 50	.....
2265 W. S. Grey .....	do .....	G-7.....	1896?	Bored, 2-inch .....	91	.....	85	29	Hand .....	35.00	.....	Domestic .....	.....	.....
2266 do .....	do .....	G-7.....	1903	Bored, 4-inch .....	91	.....	94	27	Gas .....	85.00	200.00	Irrigation .....	.....	.....
2267 W. Spalding .....	do .....	G-7.....	1894?	Bored, 1½-inch .....	91	.....	85	29	Hand .....	35.00	.....	Domestic .....	.....	.....

2268	Wm. Stooksherg.....	do.....	G-7.....	1891	Bored, 4-inch.....	30	do.....	do.....	do.....	do.....	do.....	do.....	do.....	do.....
2269	A. E. Brittie.....	do.....	G-7.....	1890?	Bored, 2-inch.....	95	do.....	82	30	do.....	do.....	do.....	do.....	do.....
2270	W. H. Porter.....	do.....	G-6.....	1897	Bored, 4-inch.....	96	do.....	85	30	do.....	do.....	do.....	do.....	do.....
2271	E. E. Ball.....	do.....	G-6.....	1896	do.....	.97	do.....	320	21	Wind.	400.00	60.00	do.....	do.....
2272	M. P. Snyder.....	do.....	G-6.....	1898	Bored, 2-inch.....	97	do.....	75	31	Hand.	do.....	do.....	do.....	do.....
2273	J. H. Cooke.....	do.....	G-6.....	1884	Bored, 4-inch.....	100	do.....	56	30	Wind.	do.....	do.....	do.....	do.....
2274	V. M. Hardy.....	do.....	G-6.....	1900	Dug, 3 by 3 foot.....	103	do.....	13	44	Hand.	do.....	do.....	do.....	do.....
2275	T. Bright.....	do.....	G-6.....	1898	Bored, 6-inch.....	102	do.....	98	do.....	do.....	110.00	do.....	do.....	do.....
2276	James Bacon.....	do.....	G-6.....	do.....	Bored, 4-inch.....	105	do.....	90	30	do.....	do.....	do.....	do.....	do.....
2277	Cochran & Williams, agents.....	do.....	G-6.....	do.....	Dug, 4 by 4 foot.....	103	do.....	98	16	66	do.....	do.....	do.....	do.....
2278	do.....	No.....	H-6.....	1885?	Bored, 4-inch.....	103	do.....	100?	32	Wind.	do.....	do.....	do.....	do.....
2279	Sam. Franklin.....	do.....	H-8.....	1879?	Driven, 5-inch.....	105	do.....	50?	35	Hand.	do.....	do.....	do.....	do.....
2280	J. Y. Stephenson.....	do.....	H-6.....	1882?	Driven, 6-inch.....	104	do.....	50?	42	do.....	do.....	do.....	do.....	do.....
2281	Mrs. B. Frankel.....	do.....	H-6.....	1895?	Driven, 4-inch.....	108	do.....	80	48	do.....	75.00	do.....	do.....	do.....
2282	N. Vanfleet.....	Los Coyotes.....	H-5.....	1883	Bored, 7-inch.....	112	do.....	112	277	26	Wind, gas.....	500.00	250.00	Domestic; irriga- tion.
2283	do.....	Santa Gertrudis.....	H-5.....	1880?	do.....	112	do.....	112	106	325	do.....	do.....	do.....	do.....
2284	W. F. Hall.....	do.....	H-5.....	1903	Bored, 4-inch.....	112	do.....	81	33	Hand.	75.00	do.....	do.....	do.....
2285	W. H. Townsend.....	do.....	H-6.....	1888	do.....	112	do.....	107	42	27	do.....	40.00	do.....	do.....
2286	Mrs. Husk.....	do.....	H-6.....	1885	do.....	113	do.....	108	64	29	do.....	50.00	do.....	do.....
2287	R. B. Carpenter.....	do.....	G-5.....	1902	Bored, 1½-inch.....	114	do.....	32	29	do.....	do.....	20.00	do.....	do.....
2288	J. R. Crowell.....	do.....	G-5.....	1898	Bored, 2-inch.....	114	do.....	86	30	Wind.	do.....	42.00	125.00	Domestic; stock.
2289	R. B. Carpenter.....	do.....	G-5.....	1900	Bored, 10-inch.....	114	do.....	108	100	25	Gas.....	250.00	do.....	Irrigation.
2290	do.....	do.....	G-5.....	1888?	Bored, 4-inch.....	109	do.....	65	31	Wind.	do.....	52.00	do.....	Domestic; stock.
2291	P. O. Rogers.....	do.....	G-5.....	1887	do.....	110	do.....	104	70	33	do.....	56.00	240.00	Domestic.
2292	J. E. Jannison.....	do.....	G-6.....	1887	do.....	107	do.....	100	65	33	do.....	52.50	do.....	Domestic; stock.
2293	J. H. Cooke.....	do.....	G-6.....	1885	do.....	99	do.....	92	do.....	do.....	60.00	do.....	Not used.	do.....
2294	R. E. Briar.....	do.....	G-6.....	1879?	do.....	97	do.....	91	60	25	Wind.	do.....	do.....	Domestic; stock.
2295	Redfield Chatman.....	do.....	F-6.....	1880?	do.....	103	do.....	91	100?	21	do.....	do.....	do.....	do.....
2296	J. Quill.....	do.....	F-6.....	1884?	do.....	100	do.....	117	22	Hand.	125.00	do.....	do.....	Domestic.
2297	Mrs. Hewitt.....	do.....	G-6.....	1898	Bored, 2-inch.....	99	do.....	90	do.....	do.....	do.....	do.....	do.....	do.....
2298	A. Horton.....	do.....	G-6.....	do.....	do.....	98	do.....	90?	26	do.....	do.....	do.....	do.....	do.....
2299	Joe Dismukes.....	do.....	F-6.....	do.....	Driven, 2-inch.....	do.....	do.....	20?	do.....	do.....	do.....	Stock.	do.....	do.....
2300	H. A. Anderson.....	do.....	G-7.....	do.....	Bored, 4-inch.....	93	do.....	85?	22	Wind.	do.....	do.....	do.....	Domestic.
2301	A. Curtain.....	do.....	F-7.....	1885	do.....	95	do.....	114	24	do.....	100.00	50.00	do.....	do.....

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner	Location.	Map location.	Year completed.	Class of well.	Depth of well.	Elevation of surface.	Elevation of water.	Feed.	Feed.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.	Miner's inches.
2302	A. Curtain	Santa Gertrudis	F-6	1900	Bored, 12-inch	95	96	755	23	Artesian	\$2,360.00	\$27.00	Irrigation	Small.		
2303	Wm. McCormick	do	F-6	1903	Bored, 5-inch	96	86	125	28	Hand	120.00	do	Domestic			
2304	A. Curtain	do	F-6	1895	Bored, 2-inch	95	85	110	22	do	40.00	do	Stock			
2305	Downey Masons	do	G-7	1896?	Bored, 4-inch	93	84	237	Wind	650.00	700.00	do	Irrigation			
2306	T. S. Beatty	Los Cerritos	G-7	1899	Bored, 10-inch	92	92	237	Gas	650.00	700.00	do	Domestic			
2307	do	do	F-7	1883?	Bored, 4-inch	92	92	90?	26	Wind	do	do	Domestic			
2308	John Mullen	do	F-7	1898	Bored, 12-inch	89	89	190	do	do	do	do	Irrigation			
2309	do	do	F-7	1903	Bored, 5-inch	88	88	150?	26	Wind	do	do	Domestic			
2310	Mrs. Petterson	do	G-7	1892	Bored, 4-inch	84	80	118	24	do	do	do	do	do	do	
2311	G. Anderson	do	F-7	1898	Bored, 9½-inch	84	80	237	Gas	360.00	700.00	do	Irrigation	90		
2312	do	do	F-7	1903	Bored, 10-inch	84	80	237	do	do	350.00	do	Domestic			
2313	F. Caseres	do	F-7	1900	Bored, 2-inch	84	81	150	26	Hand	45.00	125.00	Domestic			
2314	G. Anderson	do	F-7	1891	Bored, 7-inch	84	84	233	25	Wind	300.00	120.00	Domestic; stock			
2315	Fred Lechner	do	F-7	1902	Bored, 5-inch	84	84	129	do	Wind, artesian	150.00	do	Domestic			
2316	Chas. McCurdy	do	F-7	1898	Bored, 2-inch	83	83	155	do	Hand	62.00	do	Domestic			
2317	H. Bush	do	F-7	1893?	Bored, 4-inch	82	78	110	28	do	88.00	do	Domestic			
2318	A. Convert	do	F-7	1895	Bored, 2-inch	82	82	137	do	Artesian	55.00	do	Domestic			
2319	do	do	F-7	1898	do	82	82	142	25	do	60.00	do	Stock			
2320	do	do	F-7	1902	do	81	96	26	do	do	40.00	do	Domestic			
2321	D. O'Leary	do	F-7	1893	do	80	80	140	25	Artesian, hand	55.00	do	Domestic; stock			
2322	F. W. Curtis	do	F-7	1901	Bored, 5-inch	81	151	24	Hand	125.00	do	Domestic				
2323	Mr. Armstrong	do	F-8	1899	Bored, 2-inch	79	79	146	24	Artesian, hand	55.00	do	Stock; domestic			
2324	E. L. Lovel	do	F-8	1898	do	78	78	630	25	Artesian	224.00	do	Domestic; irrigation	2		

2325	do	F-8	1899	do	77	77	130	25	Artesian, hand	48.00	Stock	Small.	
2326	L. Ofer	do	1893?	do	77	77	140?	26	Artesian	..	Domestic; stock	..	
2327	L. Conant	do	1893?	do	75	75	138	24	Artesian, wind	50.00	Domestic	Sma.	
2328	Chris. Miller	do	1900	do	72	72	155?	24	Artesian	50.00	Stock; irrigation	-4	
2329	do	F-8	1895	do	72	72	150	24	do	40.00	Domestic; stock	..	
2330	Mr. Fitzpatrick	do	1901	do	72	72	150?	24	do	40.00	do	1	
2331	Axle Anderson	do	F-8	1899	Bored, 3-inch	71	160	25	do	36.00	Domestic; stock; irrigation	1	
2332	A. J. Staly	do	F-8	1894?	do	70	70	144	24	do	70.00	Domestic; stock	..
2333	do	F-8	1897?	do	70	70	140	24	do	75.00	Irrigation; stock	..	
2334	John Anderson	do	F-9	1900	Bored, 10-inch	68	68	675	24	do	1,400.00	Irrigation	..
2335	M. N. Pousey	do	F-9	1896	Bored, 2-inch	69	69	205	27	do	83.00	Domestic	Small.
2336	John Anderson	do	F-9	1894	do	69	69	260	26	do	110.00	Not used	..
2337	do	F-9	1895	do	69	69	260	26	do	110.00	Domestic	Small.	
2338	C. P. Eldridge	do	F-9	1896	Bored, 3-inch	70	70	610	24	do	150.00	do	..
2339	P. H. Clark	Santa Gertrudis	F-9	1891?	do	71	71	248	24	Artesian, wind	..	do	..
2340	C. H. Kirby	Los Cerritos	E-9	1896?	Bored, 2-inch	64	64	560	24	Artesian	224.00	Domestic; stock	Small.
2341	do	do	E-9	1898	do	64	64	168	24	do	..	Irrigation	2
2342	do	do	E-9	1898	do	64	64	178	26	do	65.00	do	+1
2343	do	do	E-9	1892?	Bored, 4-inch	64	67	145?	25	do	..	Stock	Small.
2344	J. D. Fredericks	do	F-9	1898	Bored, 2-inch	65	65	588	33	do	235.00	Stock; domestic	..
2345	A. I. Stewart	do	E-9	1901	do	65	65	190	24	Artesian, hand	80.00	Domestic	Small.
2346	do	do	E-9	1894?	Bored, 4-inch	66	66	600?	24	Gas	350.00	Irrigation	..
2347	J. H. Patterson	do	F-9	1899?	Bored, 3-inch	66	66	760?	27	Artesian	..	Domestic; irrigation	..
2348	A. McKelevy	do	E-9	1898	Bored, 2-inch	68	68	226	25	Hand	90.00	Domestic	..
2349	J. C. Caldwell, agent	do	E-9	1902	do	69	69	554	24	Artesian	250.00	do	2
2350	Mrs. A. Blanc	do	F-9	1899	Bored, 4-inch	69	69	630?	26	do	..	Domestic; irrigation	5
2351	Alex. Stewart	do	F-9	1897	Bored, 2-inch	69	69	630	24	do	120.00	do	..
2352	C. H. Longhery	do	E-9	1901	do	70	70	182	24	Wind	82.00	Domestic	..
2353	H. P. Epperson	do	E-8,9	1895	do	70	70	24	Artesian, wind	300.00	do	Small.	
2354	do	do	E-8	1895	do	70	70	616	23	Artesian	300.00	do	..
2355	do	do	E-8,9	1895	do	70	70	615	21	Hand	60.00	do	..
2356	T. F. Downs	do	F-8	1903	do	70	70	140	21	Hand	60.00	do	..
2357	John Clark	do	F-8	1898	do	70	70	140	25	do	60.00	do	..

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Method of lift.	Cost of machinery.	Quantity of water.				
											Solids per 100,000.	Feet.	Feet.	Gas...	Irrigation...
2358	Hynes Irrigation Co.	Los Cerritos	E-8	1898	Bored, 12-inch	71	71	253	22	\$700.00					
2359	E. T. Thwing	do	E-8	1899	Bored, 2-inch	72	72	615	25	\$180.00					
2360	M. A. Pilkey	do	E-8	1896?	do	72	72	150	26	65.00					
2361	J. Jahnke	do	E-8	1903	do	72	72	145	Hand	65.00					
2362	Mrs. Letner	do	E-8	1903	do	72	72	147	25	Artesian					
2363	Chas. Harmon	do	F-8	1897?	Dug, 3 by 3 foot	73	67	8	53	Hand					
2364	E. T. Fuller	do	F-8	1895	Dug, 2 by 3 foot	73	67	7	56	do					
2365	H. L. Covell	do	F-8	1896?	Bored, 2-inch	73	73	150	Artesian, hand	65.00					
2366	do	do	F-8	1898	do	73	73	150	24	Hand, artesian					
2367	F. F. Howard	do	F-8	1893	Bored, 4-inch	73	73	150	25	do					
2368	Mrs. Chas. Wilds	do	F-8	1899	Bored, 2-inch	74	74	150	24	Artesian					
2369	John Steneman	do	F-8	1897	do	73	73	150	22	Hand, artesian					
2370	Mrs. Thompson	do	F-8	1890?	do	73	73	135	23	Artesian					
2371	G. W. Williams	do	F-8	1895	do	73	73	148	24	Artesian, hand					
2372	J. F. King	do	E-8	1897	do	73	73	146	25	Artesian					1
2373	Mrs. G. Geryalva	do	F-8	1901	Dug, 3 by 3 foot	74	68	8	Hand	55.00					2
2374	Chas. Wilder	do	F-8	1901	Bored, 2-inch	74	74	152	25	Artesian					
2375	G. E. Robdin	do	F-8	1897	do	75	75	160	24	do					
2376	School	do	F-8	1893	do	75	75	152	22	Wind					
2377	W. M. Squires	do	F-8	1895?	do	75	75	168	24	Artesian					
2378	J. Q. Hall	do	E, F-8	1897	do	74	74	160	25	Hand					
2379	Mrs. Gaines	do	F-8	1895?	do	74	74	154	24	Artesian, hand					
2380	Tom Gregory	do	E-8	1903	do	73	73	155	22	Artesian					



## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Depth of well.	Elevation of surface.	Elevation of water.	Solids per 100,000.	Cost of well.	Use of water.	Quantity of water.	
												Feet.	Feet.
2415	Mr. Bacon	Santa Gertrudis.		F-6.....	1893	Bored, 7-inch.....	95	300?	27	Wind.	Stock.		
2416	do			F-6.....	1883?	do.....	96	94	109	Hand.	do.		
2417	D. Lane			F-6.....	1899	Bored, 2-inch.....	97	140	29	Wind	\$100.00	Domestic, stock.	
2418	G. W. Holecomb			F-6.....	1895?	Bored, 4-inch.....	100	92	110	28	do	Domestic.	
2419	J. W. Venable			F-6.....	1876	do.....	100	92	68	29	do	do.	
2420	M. McCurdy			F-6.....	1898?	Driven, 1½-inch.....	101	.....	16	36	Hand.	do.	
2421	C. Brown			F-6.....	1887	Bored, 7-inch.....	102	94	100	27	Wind.	do.	
2422	Thos. Grider			F-6.....	1898	Driven, 1½-inch.....	102	.....	85	30	Hand.	do.	
2423	do			F-6.....	1880	Dug, 2½ by 2½ foot.	102	92	14	53	do	Stock.	
2424	J. W. Brown			F-6.....	1889	Bored, 4-inch.....	103	.....	112	30	Wind.	50.00	do.
2425	James Quill			F-6.....	1883	do.....	103	.....	125	28	do	Domestic.	
2426	do			F-5.....	1883	do.....	103	.....	85	29	Hand.	Stock.	
2427	do			F-6.....	1883	do.....	104	91	98	23	.....	Not used.	
2428	B. L. Barnett			F-6.....	1893	do.....	104	91	160?	29	Wind.	Domestic.	
2429	C. B. Reddick			F-5.....	1893?	Driven, 1½-inch.....	106	.....	60?	43	Hand.	do.	
2430	Mrs. Clayton			F-6.....	1888	Bored, 4-inch.....	105	91	85?	32	Wind.	do.	
2431	J. H. Cooke			F-6.....	1884	do.....	105	92	86	28	do	do.	
2432	Mrs. Briggs			F-6.....	1896?	Bored, 5-inch.....	105	94	98	26	do	do.	
2433	J. De Paa			F-5.....	.....	Dug, 2 by 3 foot.....	106	96	12	.....	Hand.	do.	
2434	I. L. Easterly			F-6.....	.....	Driven, 1½-inch.....	106	.....	35?	32	do	do.	
2435	J. H. Aidis			F-5.....	1891?	Bored, 4-inch.....	107	.....	90	30	Wind.	do.	
2436	Chas. Butler			F-6.....	.....	do.....	106	95	75	26	Hand.	do.	
2437	Mr. Cookingham			G-6.....	1896	Bored, 2-inch.....	107	.....	97	.....	Wind.	48.00	60.00

2438	J. Ullery.....	do.....	G-6.....	1888	Bored, 4-inch.....	107	96	28	do.....	65.00
2439	Mrs. T. J. Kearns .....	do.....	G-6.....	1882	do.....	106	96	46	do.....	do.....
2440	Mrs. J. Butler .....	do.....	G-6.....	1882	do.....	107	88	29	Hand.....	70.00
2441	F. Bohn.....	do.....	G-6.....	1901	do.....	103	100	27	Wind.....	73.00
2442	do.....	do.....	G-6.....	1882	do.....	103	90	27	do.....	Stock.....
2443	Alameda School.....	do.....	G-6.....	1899	do.....	104	86	26	Hand.....	do.....
2444	B. P. Patten.....	do.....	G-5.....	1896	Dug, 2-foot diam.....	110	82	28	do.....	do.....
2445	F. Stout.....	do.....	G-5.....	1885?	Driven, 2-inch.....	110	76	do.....	40.00	do.....
2446	B. P. Patten.....	do.....	G-5.....	1885?	Bored, 4-inch.....	111	86	28	do.....	65.00
2447	R. B. Alexander .....	do.....	G-5.....	1897	Hydraulic, 2-inch.....	112	78	33	Wind.....	27.00
2448	A. Buhler.....	do.....	G-5.....	1875?	Bored, 6-inch.....	112	98	29	do.....	do.....
2449	F. Smith.....	do.....	G-5.....	1898?	Bored, 2-inch.....	113	82	32	Hand.....	do.....
2450	W. W. Walk.....	do.....	G-5.....	1893	Driven, 1½-inch.....	114	87	33	do.....	40.00
2451	G. W. Snyder.....	do.....	G-5.....	1889	Bored, 4-inch.....	114	104	86	Wind.....	40.00
2452	Erven Gillies.....	do.....	G-5.....	1889	do.....	114	86	30	Hand.....	70.00
2453	L. F. Jones.....	do.....	G-5.....	1901	Bored, 2-inch.....	115	87	27	do.....	do.....
2454	O. P. Towne.....	do.....	G-5.....	1880?	Dug, 2½ by 2½ foot.....	115	108	10	do.....	do.....
2455	do.....	do.....	G-5.....	1880?	Dug, 2½ by 3 foot.....	116	108	11	200+	do.....
2456	M. E. Scummins.....	do.....	G-5.....	1885	Bored, 2-inch.....	115	76	34	do.....	Stock.....
2457	A. B. Walk.....	do.....	G-5.....	1901	Bored, 4-inch.....	115	84	35	do.....	do.....
2458	Miss Knight.....	do.....	G-5.....	1902?	do.....	114	104	80	do.....	do.....
2459	John McCommie .....	do.....	G-5.....	do.....	do.....	114	80	28	do.....	do.....
2460	Mr. Graham.....	do.....	G-5.....	1887?	do.....	114	83	31	do.....	do.....
2461	A. M. Thompson .....	do.....	G-5.....	1902	do.....	115	105	96	Wind.....	64.00
2462	Mrs. Weis.....	do.....	G-5.....	1884	Bored, 7-inch.....	116	105	90	Steam.....	62.00
2463	do.....	do.....	G-5.....	1887	do.....	115	105	90	Wind.....	40.00
2464	John Stewart.....	do.....	G-5.....	1888	Bored, 4-inch.....	117	96	31	Hand.....	Domestic; stock.....
2465	do.....	do.....	G-5.....	1894?	Bored, 2-inch.....	115	88	31	do.....	do.....
2466	J. H. Strine.....	do.....	G-5.....	1883	Bored, 4-inch.....	115	105	90	do.....	70.00
2467	W. J. Snyder.....	do.....	G-5.....	1903	Bored, 5-inch.....	115	87	26	do.....	88.00
2468	W. W. Bramlett .....	do.....	G-5.....	1903	Bored, 7-inch.....	115	105	87	do.....	do.....
2469	Mrs. Houston.....	do.....	G-5.....	1888	Bored, 4-inch.....	114	86	26	do.....	110.00
2470	A. J. Bramlett .....	do.....	G-5.....	1891	Bored, 2-inch.....	114	90	31	do.....	45.00
2471	R. M. Moore.....	do.....	G-5.....	1887	Bored, 4-inch.....	115	113	96	do.....	72.00
2472	J. W. Woolliscroft.....	do.....	G-5.....	1898	do.....	113	91	28	Wind.....	70.00

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface, feet.	Elevation of water, feet.	Depth of well.	Method of lift.	Use of water.		Cost of machinery.	Quantity of water, inches.	
										Solids per 100,000.	Feet.	Feet.		
2473	H. A. Scott.....	Santa Gertrudis .....	G-5.....	1888	Bored, +inch.....	111	100	96	29	Wind.....	\$78.00	\$75.00	Domestic.....	
2474	E. A. Brunson.....	do.....	G-5.....	1902	do.....	109	99	96	39	Hand.....	78.00	do.....	do.....	
2475	do.....	do.....	G-5.....	1896	Hydraulic, 1½-inch	110	.....	109	30	do.....	50.00	Stock.....	Stock.....	
2476	L. Ullery.....	do.....	G-5.....	1888	Driven, 1½-inch.....	189	.....	16	86	do.....	7.00	Domestic.....	Domestic.....	
2477	H. A. Mosher.....	do.....	G-5.....	1899	Bored, 4-inch.....	109	98	77	29	do.....	58.00	do.....	do.....	
2478	M. L. Holcom.....	do.....	G-5.....	1899	Driven, 1½-inch.....	109	.....	29	35	do.....	do.....	do.....	do.....	
2479	J. C. Ullery.....	do.....	G-5.....	1900	Bored, 2-inch.....	108	.....	96	28	do.....	45.00	do.....	do.....	
2480	S. A. Wayne.....	do.....	F-5.....	1888?	Bored, 4-inch.....	109	.....	90	29	Wind.....	70.00	do.....	do.....	
2481	H. H. Fitch.....	do.....	F-5.....	1883?	Bored, 5-inch.....	108	95	74	.....	Hand.....	.....	Domestic; stock.....	Stock.....	
2482	E. P. Disimukes.....	do.....	F-5.....	1902	Bored, 4-inch.....	107	97	84	27	do.....	68.00	do.....	Stock.....	
2483	C. F. Mackley.....	do.....	F-5.....	1895	Bored, 2-inch.....	109	.....	90	30	do.....	45.00	Domestic.....	Stock.....	
2484	T. F. Renfro.....	do.....	F, G-5.....	1888	Bored, 4-inch.....	110	100	19	51	Wind.....	16.00	do.....	Domestic.....	
2485	do.....	do.....	G-5.....	.....	Driven, 1½-inch.....	110	.....	20	69	Hand.....	.....	Stock.....	Stock.....	
2486	Dr. J. C. Kendrick.....	do.....	F-5.....	1888	do.....	111	.....	19	34	do.....	8.00	do.....	do.....	
2487	do.....	do.....	F-5.....	1901	Dug, 3 by 6 foot.....	111	102	10	56	do.....	.....	Stock.....	Stock.....	
2488	E. P. Disimukes.....	do.....	G-5.....	1900	Hydraulic, 2-inch	113	.....	95	30	Wind.....	45.00	do.....	Domestic; stock.....	
2489	D. E. Darrow.....	do.....	G-5.....	1888	Bored, 4-inch.....	113	104	85	29	do.....	80.00	150.00	Domestic.....	
2490	P. F. Ryan.....	do.....	G-5.....	1898?	Driven, 1½-inch.....	113	.....	20	40	Hand.....	.....	do.....	do.....	
2491	Wm. Bischoff.....	do.....	G-5.....	1902	Driven, 4-inch.....	114	107	13	25	do.....	18.00	do.....	do.....	
2492	F. Dubio.....	do.....	G-5.....	1900	Bored, 4-inch.....	115	105	93	31	do.....	75.00	do.....	Domestic; stock.....	
2493	O. E. Gunter.....	do.....	G-5.....	1894?	do.....	115	107	19	27	do.....	15.00	do.....	Domestic.....	
2494	Mrs. Wilson.....	do.....	G-5.....	1900	do.....	116	.....	18	28	do.....	16.50	do.....	do.....	
2495	do.....	do.....	G-5.....	1901	do.....	116	.....	116	107	do.....	19.00	Stock.....	Stock.....	



## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location	Map location.	Year completed.	Class of well.	Elevation of surface.	Depth of well.	Soilids per 100,000.	Method of lift.	Cost of machinery.	Quantity of water.		
											Feet.	Feet.	Miner's inches.
2530	W. A. Horton.....	Santa Gertrudis.....	F-6.....	1891	Bored, 7-inch.....	98	90	27	Wind.....	\$45.00	Domestic.....	.....	.....
2531	County Farm.....	.....do.....	E-6.....	1888?	.....do.....	93	89	29	Gas.....	.....	Domestic; irrigation.	.....	+4
2532	Geo. L. Rognon.....	do.....	E-5.....	1901	Bored, 4-inch.....	98	94	106	Hand.....	\$74.00	8.00	Domestic.....	.....
2533	Salt Lake terminal.....	do.....	E-5.....	1903	Bored, 2-inch.....	99	80	do.....	do.....	do.....	do.....	do.....	.....
2534	E. Gunn.....	do.....	E-5.....	1903	Bored, 12-inch.....	102	94	280	24	Gas.....	.....	Irrigation.....	.....
2535	do.....	do.....	E-5.....	1903	.....do.....	102	94	280	do.....	.....	do.....	do.....	180
2536	do.....	do.....	E-5.....	1903	.....do.....	102	94	280	do.....	.....	do.....	do.....	.....
2537	Mrs. Wyatt.....	do.....	E-4.....	1896	Bored, 2-inch.....	112	.....	140	35	Wind.....	60.00	Domestic.....	.....
2538	T. A. House.....	San Antonio.....	E-4.....	1880?	Bored, 4-inch.....	108	103	84	24	Hand.....	80.00	Stock.....	.....
2539	do.....	do.....	E-4, 5.....	1880?	Bored, 6-inch.....	108	105	260	27	do.....	.....	Domestic.....	.....
2540	S. P. Walser.....	do.....	E-4.....	1903	Bored, 5-inch.....	108	102	127	24	do.....	121.00	Stock.....	.....
2541	H. H. Davis.....	do.....	E, F-4.....	1880?	Bored, 4-inch.....	112	105	76	27	Wind.....	60.00	Domestic.....	.....
2542	John Grant.....	do.....	F-4.....	1885?	Bored, 3-inch.....	113	.....	100	23	Hand.....	.....	Domestic; stock.....	.....
2543	J. A. Stewart.....	Santa Gertrudis.....	E, F-4.....	1884	Bored, 4-inch.....	108	.....	92	28	Wind.....	75.00	Domestic.....	.....
2544	J. H. Fairbanks.....	do.....	F-5.....	1887	.....do.....	107	98	86	25	do.....	72.00	do.....	.....
2545	Robert Johnson.....	do.....	F-4.....	1888?	.....do.....	108	101	84	25	do.....	68.00	do.....	.....
2546	B. M. Curtis.....	do.....	F-4.....	1901	.....do.....	109	101	80	28	Hand.....	65.00	do.....	.....
2547	do.....	do.....	F-4.....	1883	Dug, 2½ by 2½ foot.	109	101	10	do.....	.....	Stock.....	.....	.....
2548	O. T. Stroube.....	do.....	F-4.....	1904	Bored, 12-inch.....	112	.....	417	31	Artesian ?	800.00	Not used.....	.....
2549	Jim Wiley.....	do.....	F-4.....	1897	Hydraulic, 2-inch.	111	.....	100	33	Wind.....	45.00	Domestic; stock.....	.....
2550	Mrs. Laubersheimer.....	do.....	F-4.....	.....	Bored, 7-inch.....	114	108	46	32	Hand.....	.....	Domestic.....	.....
2551	J. T. Barnett.....	do.....	F-4.....	1899	Bored, 4-inch.....	114	.....	80	31	Wind.....	65.00	Stock; domestic.....	.....
2552	J. C. Simmonds.....	do.....	F-4.....	1903	.....do.....	115	108	95	29	Hand.....	75.00	Domestic.....	.....

2553	Ida Maulhart.....	do.....	F-4.....	1897	do.....	120	113	87	26	Wind.....	68.00	do.....
2554	C. S. Williams.....	do.....	F, G-4.....	1898	Bored, 2-inch.....	122	... ..	68	27	do.....	35.00	do.....
2555	Mrs. Jackson.....	do.....	G-4.....	1899	Dug, 3 by 4 foot.....	125	115	12	56	Hand.....	do.....	do.....
2556	Barnett Bros.....	do.....	G-3.....	1897	Bored, 2-inch.....	124	... ..	90	28	do.....	38.00	do.....
2557	H. H. Hunt.....	do.....	F, G-3.....	1896	Hydraulic, 2-inch.....	123	... ..	75	30	Wind.....	30.00	40.00
2558	Fried Wells.....	do.....	F-3.....	1888	Dug, 2½ by 2½ foot.....	122	118	9	61	Hand.....	do.....	do.....
2559	Y. Rhodes.....	do.....	F-3.....	1893	Driven, 1½-inch.....	123	... ..	17	37	do.....	do.....	do.....
2560	M. Paxton.....	do.....	F-3.....	1898	Bored, 2-inch.....	122	... ..	80	23	do.....	40.00	Domestic; stock.....
2561	J. S. Perry.....	do.....	F-3.....	1888?	Bored, 4-inch.....	122	... ..	100	24	do.....	do.....	Domestic.....
2562	J. Solomon.....	do.....	F-3.....	1899	Bored, 12-inch.....	120	114	130	... ..	Gas.....	250.00	Irrigation..... +75
2563	Wm. Harper.....	do.....	F-4.....	1895?	Bored, 2-inch.....	118	... ..	106	24	Wind.....	800.00	Domestic.....
2564	do.....	do.....	F-4.....	1899	Bored, 4-inch.....	117	109	104	23	do.....	90.00	Domestic; stock.....
2565	R. B. Harper.....	do.....	E-4.....	1895	do.....	116	110	96	22	Hand.....	do.....	Domestic.....
2566	Grant Bros.....	do.....	E-3.....	1878?	Bored, 7-inch.....	120	... ..	335	24	Wind.....	do.....	Domestic.....
2567	T. N. Ellis.....	do.....	E-3.....	1875?	Bored, 6-inch.....	122	... ..	180	34	do.....	do.....	Irrigation..... +80
2568	N. E. Fay.....	do.....	E-3.....	1903	Bored, 10-inch.....	124	118	221	... ..	Steam.....	400.00	Domestic; stock.....
2569	do.....	do.....	E-3.....	1902	Bored, 5-inch.....	122	116	101	29	Hand.....	91.00	Domestic.....
2570	A. Leach.....	do.....	E-3, 4.....	...	Bored, 7-inch.....	121	119	35	31	do.....	do.....	do.....
2571	San Antonio School.....	do.....	E-4.....	1892?	Bored, 2-inch.....	121	... ..	285	34	do.....	do.....	Not used.....
2572	H. G. Hamilton.....	do.....	E-4.....	1903	Bored, 5-inch.....	121	118	360	35	Hand.....	90.00	Domestic.....
2573	do.....	do.....	E-4.....	1888	do.....	120	... ..	100	37	Not installed....	370.00	Irrigation.....
2574	J. Clements.....	do.....	D-4.....	1904	Bored, 12-inch.....	118	112	185	71	Hand.....	55.00	Domestic.....
2575	Lewis Gross.....	do.....	E-4.....	1901	Bored, 2-inch.....	118	... ..	127	36	Hand.....	do.....	do.....
2576	do.....	do.....	E-4.....	1902	do.....	116	... ..	145	37	Wind.....	74.00	35.00
2577	K. Mosbacher.....	do.....	E-3.....	1883	Bored, 4-inch.....	121	114	44	46	Hand.....	do.....	do.....
2578	D. Barberena.....	do.....	F-3.....	1880	do.....	123	116	52	27	do.....	68.00	do.....
2579	M. M. Shirley.....	do.....	F-3.....	1880?	do.....	124	... ..	62	32	Wind.....	do.....	do.....
2580	Z. B. Slater.....	do.....	F-3.....	1899	Bored, 7-inch.....	124	116	64	26	do.....	85.00	do.....
2581	T. H. Stafford.....	do.....	F-2.....	1893	do.....	135	125	99	28	do.....	100.00	150.00
2582	Wm. Specht.....	do.....	F-2.....	1893	Dug, 3 by 4 foot.....	132	123	15	48	Hand.....	do.....	do.....
2583	do.....	do.....	F-2.....	1893	Bored, 10-inch.....	130	125	200	36	do.....	250.00	do.....
2584	do.....	do.....	E-2.....	1899	do.....	130	128	860	38	Gas.....	3,000.00	Irrigation..... +90
2585	do.....	do.....	E-2.....	1899	do.....	130	128	230	37	Wind.....	110.00	Domestic; stock.....
2586	H. T. Shirley.....	do.....	E-2.....	1900	Bored, 2-inch.....	133	... ..	138	38	Gas.....	1,000.00	Irrigation..... +100
2587	L. A. Walker.....	do.....	E-2.....	1902	Bored, 10-inch.....	138	130	428	38	Gas.....	do.....	do.....

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface, feet.	Elevation of water, feet.	Depth of well.	Method of lift.	Cost of well.	Cost of machinery.	Quantity of water.	Miner's inches.		
													Feet.	Feet.	
2888	Robert Brown	San Antonio	D-2	1886?	Bored, 7-inch	142	320	36	Wind				Domestic.	..	..
2889	W. Partridge	do	D, E-2	1898	Bored, 2-inch	139	104	38	do				Irrigation	..	..
2890	Doctor Royer	do	D-3	1903	Bored, 10-inch	137	128	37	Gas				Domestic	..	+ 20
2891	Mrs. Summers	do	D-2	1897?	Bored, 7-inch	143	134	27	Wind				Stock		
2892	W. J. Jones	do	D-2	1885?	Dug, 3 by 4 foot	144	135	13	Hand				Stock; domestic; stock		
2893	C. Rathole	do	D-3	1882?	Bored, 7-inch	139	106	38	Wind				Domestic; stock		
2894	Mrs. Baker	do	C-1	do	Dug, 4 by 4 foot	176	158	19	Hand				Domestic		
2895	do	do	C-1	do	Bored, 7-inch	178	178	60	do				do		
2896	E. G. Greening	do	D-1	do	Dug, 2½ by 2½ foot	175	157	19	do				Stock; domestic		
2897	do	do	D-1	1899	Bored, 10-inch	163	153	181	Electricity				Irrigation		+ 195
2898	do	do	D-1	1896	Bored, 4-inch	150	150	60	Horsepower				Domestic; stock		
2899	do	do	D-2	1890?	Dug, 4 by 4 foot	162	148	14	Hand				Domestic		
2900	do	do	D-2	1901	Bored, 4-inch	150	150	71	42	do			do		
2901	Mrs. Baker	do	D-2	1880?	Dug, 3 by 3 foot	149	138	12	31	do			do		
2902	Pacific Electric Co.	do	F-2	1903	Bored, 4-inch	143	143	90	Wind				do		
2903	Mrs. Baker	do	G-1, 2	1902	Dug, 4 by 4 foot	162	138	26	46				Domestic; stock		
2904	do	do	F-1	1893	do	148	141	10	25	do			Domestic		
2905	do	do	F-1	1876?	Bored, 6-inch	146	142	510	52				Stock		+ 2
2906	do	do	F-1	1900	Bored, 10-inch	149	142	600+	52	Gas			do		+ 10
2907	Thomas Hodgins	do	G-2	1903	Bored, 7-inch	155	130	121	32	Wind			Domestic		
2908	H. T. Gage	do	G-3	1890?	do	141	150	29	Gas				do		
2909	B. Menda	do	F-2	1887	Dug, 4 by 4 foot	137	122	16	Wind				do		

2610	A. Ducos.	do.	F-2	1901	Bored, 8-inch.....	20	43	do	do
2611	C. S. Walton.	do.	F-2	1895	Bored, 4-inch.....	63	34	do	do
2612	P. Lugo.	do.	F-2	1897	Dug, 3 by 3 foot..	137	11	61 Hand.	do
2613	F. N. Lugo.	do.	F-2	1875?	Dug, 2 by 2 foot..	127	138	13 Hand.	do
2614	H. Reich.	do.	F-2	1864?	Dug, 2 by 4 foot..	127	124	16 Wind	Domestic; stock.
2615	Chas. Dochtermann.	do.	F-2	1898	Dug, 4 by 4 foot..	135	125	12 Hand	do
2616	E. Peschkt.	do.	F, G-3...	1893?	Bored, 7-inch.....	131	121	21 Wind	Domestic.
2617	S. C. Foster.	do.	G-3	1887	Bored, 4-inch.....	130	119	105	150.00 do
2618	Mrs. S. Foster.	do.	G-3	1901	Driven, 1½-inch..	130	18	49 Hand	110.00 do
2619	A. T. Foster.	do.	G-3	1888	Bored, 4-inch.....	129	120	26 do	do
2620	S. J. Arey	Santa Gertrudis.	G-3	1891	Bored, 7-inch.....	130	119	139	25 Wind
2621	Geo. Tweedy.	do.	H-2	1885?	Bored, 4-inch.....	154	140	58	Domestic stock.
2622	G. W. McCampbell.	do.	H-2,3	1878	do.....	153	138	60	Domestic
2623	A. A. Tweedy.	do.	H-2	1888?	Bored, 7-inch.....	157	73	32 do	do
2624	E. W. Reder.	do.	H-3	1901	Bored, 4-inch.....	155	90	29 do	do
2625	L. L. Bequette.	do.	H-2	1898	Driven, 1½-inch..	157	14	25 Hand	100.00 Stock
2626	do.	do.	H-2,3	1868	Bored, 4-inch.....	157	40	25 do	Domestic
2627	Mrs. McFarland.	do.	H-3	1899	do.....	152	80	26 Wind	do
2628	do.	do.	H-3	1902	Bored, 12-inch..	152	135	484	Not used. Domestic
2629	S. G. Reynolds.	do.	H-3	1883?	Bored, 4-inch.....	150	84	35 Wind	do
2630	W. T. East.	do.	H-3	1890?	do.....	148	72	36 do	72.00 do
2631	Stanley & Tweedy.	do.	H-3	1890?	do.....	148	133	67 Hand	do
2632	A. D. Kellam.	do.	H-3	1902	do.....	150	134	78 do	38.00 do
2633	A. O. Kempher.	do.	H-3	1878?	Dug, 3 by 3 foot..	149	137	13 do	Domestic; irriga-
2634	J. W. Cate.	do.	H-3	1903	Bored, 4-inch..	147	134	72 Gas.	48.00 tion.
2635	A. D. Kellam.	do.	H-3	1898	do.....	149	136	60 Wind	Domestic do
2636	Mrs. E. Taylor.	do.	H-3	1901	Bored, 5-inch.....	150	55	26 do	35.00 do
2637	do.	do.	H-3	1885	Bored, 7-inch.....	148	136	150 19?	Stock
2638	S. K. Stamps.	do.	H-3	1903	Bored, 5-inch.....	148	136	55 Hand	Domestic
2639	E. S. Johnston.	do.	H-3	1902	do.....	147	57	30 Wind	50.00 do
2640	S. C. Rooney.	do.	H-3	1903	do.....	142	51	35 do	50.00 do
2641	M. L. Bangie.	do.	H-3	1895	Driven, 1½-inch.	144	19	38 Hand	44.80 do
2642	A. Keltz.	do.	H-3	1896	Bored, 3-inch.....	143	60	34 do	30.00 do
2643	do.	do.	H-3	1891	Driven, 1½-inch....	143	17	37 do	Stock

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface, feet.	Depth of well.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water, miner's inches.
2644	E. Collins	Santa Gertrudis	H-3	1879?	Bored, 4-inch	143	133	80	26	Wind.	Domestic; stock.	.....
2645	J. P. Fleming	do	G, H-3	1887	do	142	131	73	35	do	Domestic	.....
2646	Wm. Caruthers	do	G-3	1898	Bored, 2-inch	141	131	73	32	Hand.	do	.....
2647	do	do	G-3	1898	do	140	131	68	33	do	do	.....
2648	D. Tweedy	do	G, H-3	1892?	Bored, 4-inch	140	131	52	30	Wind.	do	.....
2649	O. Stanley	do	G-3	1883	do	138	131	70	29	do	do	.....
2650	J. J. Tweedy	do	G-3	1888?	do	138	127	60	26	do	do	.....
2651	A. L. Ball	do	G-3	1885	Bored, 7-inch	131	117	675	.....	Not used.	do	.....
2652	do	do	G-3	1888	Bored, 4-inch	135	135	85	27	Wind.	Domestic	.....
2653	J. P. Fleming	do	G-3	1898	Driven, 1½-inch	135	135	14	48	.....	Domestic; stock.	.....
2654	A. W. Neighbors	do	G-4	1890?	Bored, 4-inch	132	132	85	27	Wind.	Domestic	.....
2655	C. B. Miller	do	G-4	1885?	Driven, 1½-inch	131	131	16	52	Hand.	do	.....
2656	J. W. Neighbors	do	G-4	1892	do	131	131	17	39	do	do	.....
2657	H. D. Talbert	do	G-4	1892?	Bored, 4-inch	130	130	85	28	do	do	.....
2658	E. H. Henry	do	G-4	1888?	do	128	118	20	42	do	do	.....
2659	S. J. Williams	do	G-4	1896	Driven, 1½-inch	130	130	16	62	do	do	.....
2660	C. Corsen	do	G-4	1870?	Bored, 4-inch	128	118	20	47	do	do	.....
2661	A. W. Neighbors	do	G-4	do	do	129	119	73	28	do	do	.....
2662	Mrs. A. Coe	do	G-3, 4	1887?	do	128	128	93	33	Wind.	do	.....
2663	J. H. Burke	do	G-4	1875?	Bored, 7-inch	128	117	96	27	do	do	.....
2664	M. Bolen	do	G-4	1903	Driven, 2-inch	125	125	14	40	Hand.	do	.....
2665	Frank Burke	do	G-4	1891	Bored, 4-inch	119	119	84	28	Wind.	Domestic; stock.	.....
2666	J. D. Ardis	do	F, G-4	1901	Bored, 5-inch	106	106	85	28	Hand.	\$65.00	Domestic

2667	C. A. McKnight.....	do.....	G-4.....	1897	Bored, 1½-inch.....	117.....	15	34.....do.....	38.00	do.....
2668	Mr. Suggs.....	do.....	G-4.....	1898	Hydraulic, 2-inch.	116.....	84	31.....do.....	70.00	do.....
2669	D. Bennett.....	do.....	G-5.....	1893?	Bored, 4-inch.....	117.....	93	30.....Wind.....	do.....	do.....
2670	J. Smith.....	do.....	G-4,5.....	1902	...do.....	118.....	95	30.....Hand.....	do.....	do.....
2671	J. C. Rives.....	do.....	G-4.....	1901	Driven, 1½-inch.....	119.....	15	34.....do.....	do.....	do.....
2672	H. M. Blair.....	do.....	G-4.....	1899	...do.....	120.....	15	33.....do.....	do.....	do.....
2673	J. C. Rives.....	do.....	G-4.....	1893?	Bored, 4-inch.....	122.....	92	30.....Wind.....	Stock.....	Stock.....
2674	H. G. Harper.....	do.....	G-4.....	1890?	...do.....	123.....	84	34.....do.....	75.00	Domestic.....
2675	G. F. Brownson.....	do.....	G-4.....	1890?	...do.....	125.....	84	26.....Hand.....	75.00	do.....
2676	L. McLane.....	do.....	G-4.....	1898	...do.....	127.....	83	37.....do.....	75.00	Domestic; stock.....
2677	J. C. Simmons.....	do.....	G-4.....	1896?	...do.....	127.....	90	29.....Wind.....	80.00	Domestic; stock.....
2678	Ella L. Squire.....	do.....	G-4.....	1898	Bored, 2-inch.....	130.....	82	34.....do.....	34.00	Domestic.....
2679	Mr. Cohen.....	do.....	G-4.....	1875	Bored, 4-inch.....	131.....	104	23.....do.....	Stock.....	Stock.....
2680	A. S. Gray.....	do.....	H-4.....	1890	...do.....	139.....	110	29.....do.....	Domestic.....	Domestic.....
2681	A. Rubio.....	do.....	G-4.....	1903	Bored, 9¾-inch.....	130.....	120	110.....Not installed.....	110.00	Domestic.....
2682	do.....	do.....	G-4.....	do.....	Bored, 4-inch.....	130.....	80	31.....Wind.....	do.....	Domestic.....
2683	Sam Frankel.....	do.....	G-4.....	1895	Bored, 2-inch.....	130.....	48	30.....Hand.....	do.....	do.....
2684	C. Nimmro.....	do.....	H-4.....	do.....	Bored, 4-inch.....	128.....	72	56.....do.....	68.00	do.....
2685	W. B. French.....	do.....	H-4.....	1901	...do.....	131.....	90	49.....do.....	55.00	do.....
2686	James Brookshire.....	do.....	H-4.....	1890	...do.....	130.....	118	71.....Wind.....	do.....	do.....
2687	D. Woods.....	do.....	H-4.....	1885?	...do.....	130.....	11	75.....Hand.....	do.....	do.....
2688	C. C. Lower.....	do.....	H-4.....	1890?	...do.....	127.....	115	85.....Wind.....	do.....	do.....
2689	James W. Rugg.....	do.....	H-4.....	1896	Bored, 2-inch.....	127.....	78	29.....do.....	35.00	do.....
2690	A. L. Ball.....	do.....	H-4.....	1886	Bored, 4-inch.....	126.....	113	72.....do.....	do.....	do.....
2691	J. B. Graham.....	do.....	G-4.....	1883?	...do.....	127.....	84	31.....do.....	do.....	do.....
2693	A. Thompson.....	do.....	G-4.....	do.....	...do.....	123.....	85	32.....do.....	do.....	do.....
2694	Mrs. A. C. Smith.....	do.....	G-4.....	1878	...do.....	123.....	111	75.....do.....	do.....	do.....
2695	I. M. Cochran.....	do.....	G-4.....	1880?	Bored, 7-inch.....	123.....	110	98.....do.....	do.....	do.....
2697	John Strine.....	do.....	G-4.....	1903	Bored, 4-inch.....	121.....	85	32.....do.....	73.10	do.....
2698	Doctor Rowley.....	do.....	G-4,5.....	1873	Bored, 7-inch.....	120.....	80	30.....do.....	do.....	do.....
2699	Christian Church.....	do.....	G-5.....	1903	Bored, 4-inch.....	119.....	97	31.....Hand.....	73.00	do.....
2700	E. J. Easterly.....	do.....	G-5.....	1889?	Bored, 5-inch.....	118.....	100	31.....Wind.....	do.....	do.....
2701	Mrs. J. Harris.....	do.....	G-5.....	1885	Bored, 4-inch.....	119.....	88	41.....do.....	do.....	do.....
2702	Mrs. M. E. Frankel.....	do.....	G-5.....	1903	Bored, 5-inch.....	111.....	86	36.....Hand.....	80.00	do.....
2703	B. F. Witherspoon.....	do.....	G-5.....	1887	Bored, 4-inch.....	118.....	70	34.....do.....	60.00	do.....

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Soil per 100,000.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.	Miner's
													inches.
2704	W. H. Steel	Santa Gertrudis	G-5.....	1903	Bored, 4-inch.....	118	108	90	30	Hand.....	\$76.50	Domestic.....	
2705	Mrs. E. F. Scribner	do	G-5.....	1893	do.....	118	108	68	33	do.....	55.00	do.....	
2706*	H. A. Adams	do	G-5.....	1902	Bored, 5-inch.....	118	109	83	32	do.....	72.25	do.....	
2707	W. E. White	do	G-5.....	do	Bored, 7-inch.....	119	108	70	32	do.....	do.....	do.....	
2708	Mrs. J. M. Smith	do	G-5.....	1901	Bored, 4-inch.....	119	108	91	34	do.....	75.00	do.....	
2709	Doctor Haygood	do	G-5.....	do	do.....	120	109	85	32	Wind.....	do.....	do.....	
2710	S. K. Woodward	do	G-4.....	1885?	do.....	121	111	75	30	do.....	do.....	do.....	
2711	Dr. J. H. Reed	do	G-4.....	1898	do.....	122	110	84	29	do.....	70.00	do.....	
2712	S. Cohen	do	G-5.....	1884	do.....	121	110	96	29	do.....	65.00	do.....	
2713	D. P. Smart	do	G-5.....	1901	Bored, 5-inch.....	119	do	90	30	Gas.....	85.00	do.....	
2714	J. H. McCullough	do	G-5.....	1903	do.....	120	110	90	30	do.....	80.00	Domestic; irrigation.	
2715	Mrs. R. Steinart	do	G-5.....	1884	Bored, 4-inch.....	118	do	88	30	Wind.....	60.00	Domestic.....	
2716	D. P. Smart	do	G-5.....	1903	Bored, 5-inch.....	118	108	80	39	do.....	75.00	do.....	
2717	Geo. Elliott	do	G-5.....	1903	do.....	119	109	87	30	Hand.....	79.00	do.....	
2718	Mrs. M. E. Frankel	do	G-5.....	1901	do.....	120	110	62	33	do.....	65.00	do.....	
2719	James Booker	do	G-5.....	1885?	Bored, 7-inch.....	120	110	73	28	Wind.....	do.....	do.....	
2720	J. C. Stout	do	G-5.....	1903	Bored, 5-inch.....	121	111	87	40	do.....	70.00	Domestic; stock	
2721	T. R. Crawford	do	G-5.....	1896?	Bored, 10-inch.....	119	108	86	36	Gas, wind.....	do.....	Domestic; irrigation.	
2722	Joe Wegerer	do	G-5.....	1880?	Bored, 7-inch.....	120	109	84	45	Wind, hand.....	do.....	Domestic.....	
2723	D. J. Marr	do	G-5.....	do	Dug, 2 by 2 foot.....	119	114	9	49	Hand.....	do.....	Stock.....	
2724	do	do	G-5.....	1903	Bored, 5-inch.....	119	110	72	40	do.....	65.00	Stock.....	
2725	Miss M. Kellar	do	G-5.....	1880?	Bored, 4-inch.....	120	108	78	33	do.....	do.....	Domestic.....	

2726	L. Saalfeldt	do	G-5	1880?	do	54	38	do	do	do
2727	J. E. Jenison	do	H-5	1903	do	69	31	do	45.00	do
2728	T. F. Renfro	do	H-5	do	do	55	31	do	do	do
2729	J. E. Jenison	do	H-5	1899	do	118	102	do	do	do
2730	do	do	H-5	1890	do	118	do	do	do	do
2731	A. Anderson	do	H-5	1895	Hydraulic, 2-inch.	55	40	do	30.00	do
2732	R. T. Newcomb	do	H-5	1903	do	75	41	do	35.00	do
2733	do	do	H-5	1870	Dug, 3 by 3 foot...	80	51	Hand...	36.00	do
2734	J. W. Pangborn	do	H-5	1902	Bored, 5-inch...	116	108	13	56	do
2735	Chas. Harding	do	H-5	1903	do	112	105	52	48	do
2736	Mrs. Clearwater	do	H-5,6...	1902?	do	111	102	55	43	do
2737	C. C. Francis	do	H-5	1894?	Bored, 4-inch...	111	do	60	56	do
2738	John W. Rudd	do	H-5	1900	do	56	28	do	44.00	do
2739	J. W. Ragland	do	H-5	1888	Dug, 3 by 3 foot...	115	do	113	106	do
2740	H. M. Conch	do	H-5	1903	Bored, 5-inch...	119	108	16	61	do
2741	Roy Jenison	do	H-5	1897	Bored, 2-inch...	120	110	58	107	do
2742	J. E. Jenison	do	H-5	1873	Bored, 7-inch...	125	do	65	52	do
2743	E. J. Standlee	do	H-5	1870?	do	125	115	380	28	do
2744	do	do	H-4	1900	Bored, 4-inch...	128	114	71	44	do
2745	Frank Morrison	do	I-4,5...	1807	do	129	do	66	39	do
2746	R. W. Wright	do	I-4,5...	1899	do	126	115	55	33	do
2747	H. S. Redfield	do	I-4...	1901	do	123	110	46	30	do
2748	Wm. Campbell	do	H-4...	1903	Bored, 5-inch...	127	do	58	44	do
2749	W. Morrison	do	H-4,5...	1898	do	131	do	68	51	do
2750	J. M. Mayes	do	H-4...	1893	Bored, 2-inch...	128	do	65	45	do
2751	W.D. Mansfield	do	H-4...	1898	Bored, 4-inch...	131	do	68	57	do
2752	S. A. Wilks	do	H-4...	1891?	Bored, 7-inch...	133	do	56	53	do
2753	J. Edmondson	do	H-4...	1903	Bored, 4-inch...	131	101	140	24	Wind...
2754	J. A. Smith	do	H-4...	1891?	do	130	120	70	56	Hand...
2755	John Bartlett	do	H-4...	1890?	do	130	do	72	42	do
2756	R. S. Mayes	do	H-4...	1891	Driven, 1½-inch...	131	120	70	37	Wind...
2757	Wm. Sex.	do	H-4...	1890	Bored, 4-inch...	132	do	12	do	Hand...
2758	H. Griffith	do	H-4...	1903	Bored, 5-inch...	134	do	76	31	Wind...
2759	do	do	H-4...	1903	Bored, 12-inch...	134	60	60	34	do
2760	do	do	H-4...	1903	Bored, 12-inch...	137	126	180	Gas...	Irrigation...+100

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Method of lift.	Use of water.		Miner's inches.
							Depth of well.	Soilids per 100,000.	
2761	Mr. Carruthers.	Santa Gertrudis.	H-4.	1885?	Bored, 4-inch.	137	128	30	Hand...
2762	Galttton School.	do	H-4.	1895	do	138	... ...	80	do
2763	J. E. Walton.	do	H-4.	1891?	do	138	128	52	do
2764	E. F. Trabant.	do	H-4.	1890?	do	142	128	59	do
2765	Mrs. A. Hagan.	do	H-3,4...	1892?	do	143	... ...	62	Wind...
2766	Mr. Stephenson.	do	H-4.	do	do	140	... ...	80	Hand...
2767	Wm. Morrow.	do	H-4.	1895	do	138	... ...	78	do
2768	John Nelson.	do	H-4.	1897	do	139	127	64	Wind...
2769	Wm. Sex.	do	H-4.	1895	do	137	... ...	100	do
2770	C. W. Nelson.	do	H-4.	1895	Dug, 4 by 4 foot.	138	126	15	do
2771	Walter Grace.	do	H-4.	1901	Bored, 4-inch.	137	... ...	70	do
2772	D. F. Conant.	do	I-4.	do	do	133	... ...	78	do
2773	H. W. Kenney.	do	I-4.	1887?	Bored, 2-inch.	132	... ...	80	Hand...
2774	R. S. Davis.	do	I-4.	1900	Bored, 4-inch.	129	... ...	68	Wind...
2775	W. M. Ramp.	do	I-4.	1887	do	130	... ...	56	do
2776	Mrs. M. Van Deusen.	do	I-4.	1885?	do	132	124	49	Hand...
2777	T. Van Deusen.	do	I-4.	1901	do	133	... ...	50	Gas, wind...
2778	J. S. Williams.	do	I-4.	1881?	do	134	... ...	58	Wind...
2779	Peter Ralph.	do	I-4.	1893	Driven, 14-inch.	135	... ...	26	Hand...
2780	P. R. Ralph.	do	I-4.	1890?	Bored, 4-inch.	136	... ...	58	do
2781	H. H. Mills.	do	I-4.	1893?	do	138	... ...	58	Wind...
2782	L. R. Paxton.	do	I-4.	1901	do	140	... ...	63	Stock...
2783	H. E. Jamieson.	do	I-4.	1865?	Bored, 7-inch.	141	... ...	31	Hand...

2784	Mr. Crawford.....	do.....	I-4.....	1900	Hydraulic, 2-inch.	140	65	30	do.....	35.00
2785	G. S. Beckwith.....	do.....	I-4.....	1895	Dug, 4 by 4 foot ..	140	18	77	do.....	do.....
2786	J. J. King.....	do.....	I-4.....	1888?	Bored, 4-inch.....	141	62	30	Wind.....	do.....
2787	C. Vulgamort.....	do.....	I-4.....	1889?	Bored, 7-inch.....	142	65	29	do.....	do.....
2788	James Stewart.....	do.....	I-3, 4.....	1888	Bored, 4-inch.....	142	70	34	do.....	Domestic; stock.....
2789	Wedemeyer estate.....	do.....	I-4.....	1896?	Hydraulic, 2-inch.	138	53	35	Hand?.....	Stock; domestic.....
2790	E. R. Wylie.....	do.....	I-4.....	1888?	Bored, 4-inch.....	144	69	34	Wind.....	Domestic.....
2791	E. Clay.....	do.....	H,I-3.....	1890?	do.....	145	49	31	Hand.....	do.....
2792	do.....	do.....	I-3.....	do.....	Dug, 3 by 3 foot ..	146	10	46	do.....	do.....
2793	D. Standlee.....	do.....	H-3.....	1903	Bored, 5-inch.....	146	136	70	34	Wind.....
2794	O. Burke.....	do.....	I-3.....	1889?	Bored, 7-inch.....	145	80	33	do.....	100.00
2795	Dr. J. Allen Osmun.....	do.....	I-3.....	1903	Bored, 5-inch.....	150	135	62	Gas, wind.....	250.00
2796	do.....	do.....	I-3.....	1903	Bored, 4-inch.....	155	64	28	Wind, gas.....	60.00
2797	E. H. Root.....	do.....	I-3.....	1903	Bored, 5-inch.....	155	62	25	Hand.....	46.00
2798	H. Sarrasin.....	do.....	I-3.....	1890	Bored, 4-inch.....	151	136	69	31	Wind.....
2799	S. B. Root.....	do.....	I-3.....	1901	do.....	152	136	63	41	do.....
2800	J. A. Shadie.....	do.....	I-3.....	1898	Bored, 7-inch.....	152	78	33	do.....	do.....
2801	Mr. Wood.....	do.....	I-3.....	1900	Bored, 5-inch.....	152	137	56	33	do.....
2802	J. G. B. Haynes.....	do.....	I-3.....	1891	Bored, 4-inch.....	148	136	56	34	Hand.....
2803	do.....	do.....	I-3.....	1897	Bored, 7-inch.....	147	136	40	31	do.....
2804	F. E. Welsh.....	do.....	I-3.....	1895	Bored, 2-inch.....	145	40	24	Wind.....	65.00
2805	W. H. Davis.....	do.....	I-3.....	1901	Bored, 4-inch.....	146	60	36	do.....	22.00
2806	John Carden.....	do.....	I-3.....	do.....	do.....	143	120	41	33	Hand.....
2807	Miss H. Clark.....	do.....	I-3.....	1889?	Bored, 7-inch.....	144	129	34	36	do.....
2808	C. Leopold.....	do.....	I-3.....	1898	Bored, 4-inch.....	141	30	39	Wind.....	do.....
2809	E. & J. Cockrell.....	do.....	I-3, 4.....	1897	do.....	139	40	34	do.....	do.....
2810	W. Gould.....	do.....	I-3.....	1882?	do.....	141	119	50	22	Hand, wind.....
2811	F. C. Harvey.....	do.....	I-4.....	1890?	do.....	139	122	54	34	40.00
2812	J. H. Burke.....	do.....	I-3.....	1897	do.....	155	74	32	do.....	55.00
2813	do.....	do.....	I-3.....	1884	Bored, 7-inch.....	155	84	32	do.....	110.00
2814	R. H. Reynolds.....	do.....	I-3.....	1901	Driven, 1½-inch.	157	18	57	do.....	Domestic; stock.....
2815	H. L. Montgomery.....	do.....	I-3.....	1892?	Bored, 4-inch.....	157	144	57	45	Domestic.....
2816	A. A. White.....	do.....	I-3.....	1893	do.....	157	70	40	do.....	do.....
2817	Rivers School.....	do.....	I-3.....	1895	do.....	160	145	45	23	Hand.....
2818	J. A. Garrison.....	do.....	I-3.....	1889	do.....	159	146	70	33	Wind.....

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Depth of well.	Elevation of surface.	Elevation of water.	Method of lift.	Solids per 100,000.	Cost of machinery.	Use of water.	Miner's inches.	Quantity of water.
2819	J. A. Garrison	Santa Gertrudis.	I-3.....	1899	Bored, 2-inch.	159	146	65	Wind	53	\$20.00	\$37.00	Domestic.	do
2820	D. H. Montgomery	do	I-3.....	1890?	Bored, 4-inch.	159	146	65	Hand	37	40.00	do	do	do
2821	H. S. Welsh.	do	I-3.....	1902	do	159	146	67	do	37	56.00	do	do	do
2822	H. H. West.	do	I-3.....	1889?	do	160	146	60	Wind	37	do	do	do	do
2823	Mrs. Sidwell	do	I-3.....	1900	do	160	146	68	do	33	52.00	do	do	do
2824	S. B. Guthrie	do	I-3.....	1901	do	161	146	62	do	32	52.00	do	do	do
2825	S. W. Burke	do	I-3.....	1888?	do	160	146	64	Hand	31	48.00	do	do	do
2826	J. L. Groton	do	I-3.....	1899	do	160	147	58	do	32	48.00	do	do	do
2827	Pallett & Graham	do	I-3.....	1903	do	161	148	63	Wind	42	48.00	do	do	do
2828	F. Garrison	do	I-3.....	1887?	Driven, 1½-inch.	160	146	19	do	51	8.00	do	do	do
2829	E. F. Bryant	do	I-2, 3.....	1890?	Bored, 4-inch.	160	149	42	Hand	do	48.00	do	do	do
2830	M. S. Smith	do	I-3.....	1901	do	162	146	63	do	37	50.00	do	do	do
2831	F. M. Odell	do	I-2.....	1903	do	163	151	63	do	35	46.00	do	do	do
2832	C. B. Bullock	do	I-3.....	1899?	do	157	146	80	Wind	31	60.00	do	do	do
2833	O. P. Passon	do	I-3.....	1888?	Bored, 7-inch.	156	142	77	do	do	100.00	do	do	do
2834	Geo. Bullock	Paso de Bartolo.	I-3.....	1902	Bored, 5-inch.	157	145	57	do	32	60.00	do	do	do
2835	J. A. Perkins	do	I-2, 3.....	1899	Bored, 4-inch.	159	145	70	do	35	55.00	do	do	do
2836	T. B. Chapman	do	I-2.....	1892?	Bored, 7-inch.	161	148	71	do	31	95.00	do	do	do
2837	T. R. Passons	do	I-2.....	1888	Bored, 4-inch.	162	146	87	do	33	68.00	do	do	do
2838	H. M. Moss	do	I-2.....	1886?	do	164	145	68	do	33	do	do	do	do
2839	B. P. Passons	do	I-2.....	1903	do	163	153	57	do	39	43.00	35.00	do	do
2840	C. S. Gilman	do	I-2.....	1902	Driven, 1½-inch.	162	146	18	do	29	7.00	35.00	do	do
2841	G. W. Scott	do	I-2.....	1890	do	161	146	18	do	47	do	do	do	do

2842	W. L. Borden.	do	I-2	1899	do	163	25	do	30.00	do
2843	V. H. Fournier.	do	I-2	1900	do	166	20	22 Hand.	do	do
2844	McDonald Bros.	do	I-2	1893	Bored, 4-inch.	169	152	51	40.00	Domestic; stock
2845	W. Hadley.	do	I-2	1883?	Bored, 7-inch.	168	152	22	do	Domestic
2846	do	do	I-2	1899?	Driven, 1½ inch.	167	13	35 do	do	Domestic; stock
2847	H. L. Montgomery.	do	I-1	1879?	Bored, 7-inch.	166	49	37 Wind.	do	Domestic
2848	W. Hadley.	do	I-2	1899	Driven, 1¼ inch.	165	17	30 Hand	do	do
2849	H. White.	do	I-2	1900	do	171	19	44 do	do	do
2850	H. S. White.	do	I-2	1900	Bored, 4-inch.	171	40	26 Wind.	30.00	do
2851	T. L. Gooch.	do	I-2	1903	do	171	48	29 Hand.	42.00	do
2852	Henry White.	do	I-2	1886	do	173	30	26 do	30.00	do
2853	E. C. Coffman.	do	I-1	1898	Hydraulic, 2-inch.	173	30	Gas?	21.00	do
2854	B. C. Coffman.	do	I-1	1883?	Bored, 4-inch.	173	40	31 Wind.	do	Domestic; stock
2855	J. J. Nagle.	do	I-1	1890?	do	176	63	30 do	50.00	Domestic
2856	J. Carden.	do	J-1	do	Bored, 1½ inch.	180	20	38 do	do	do
2857	W. L. Witherow.	do	J-1	1879?	do	181	20	33 do	do	Domestic; stock
2858	J. Barlow.	do	I-1	1882	Bored, 7-inch.	179	161	48 do	do	Domestic
2859	W. L. Sidwell.	do	J-1	1896	Bored, 4-inch.	180	162	40 do	35.00	do
2860	J. L. Hooper.	do	J-1	1902	do	185	167	60 do	45.00	do
2861	J. P. McGill.	do	J-1	1897	Hydraulic, 2-inch.	185	48	29 do	30.00	do
2862	Mr. Everett.	do	J-1	do	Dug, 2 by 3 foot.	188	173	16 Hand	21.00	Stock
2863	F. A. Coffman.	do	J-1	1898	Hydraulic, 2-inch.	188	29	24 Wind	do	Domestic
2864	Fred Layman.	do	J-1	1902	Bored, 5-inch.	188	52	24 do	48.00	do
2865	John M. Chassee.	do	J-1	1895	Dug, 2 by 3 foot.	190	175	16 Hand	do	Domestic
2866	John T. Jones.	do	J-1	1896?	Bored, 4-inch.	186	169	34 do	do	do
2867	E. Gurada.	do	J-1	do	Bored, 7-inch.	180	170	41 Wind	do	do
2868	Ranchito School.	do	J-1	1876	Bored, 4-inch.	182	50	29 do	30.00	do
2869	Albert Duffill.	do	J-1	1893	Bored, 7-inch.	179	160	84 do	do	Domestic; stock
2870	B. M. Hotchkiss.	do	J-1	1890	Bored, 4-inch.	180	163	87 do	do	Domestic
2871	J. L. Spencer.	do	J-1	1900	do	179	45	33 do	35.00	do
2872	P. A. McGaugh.	do	J-1	1901	do	178	161	31 do	30.00	do
2873	J. Dunlap.	do	J-1	1879?	Bored, 7-inch.	172	156	50 do	do	do
2874	P. G. McGaugh.	do	J-1	1890	Bored, 4-inch.	174	157	35 Hand	30.00	do
2875	Theodore Johnson.	do	J-1	1888	do	174	157	45 do	do	do
2876	do	do	J-1	1890?	do	174	157	31 do	do	Stock

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.		Depth of well.	Solids per 100,000.	Cost of lift.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	Feet.						
2877	Tracy Abbott	Paso de Bartolo	J-1, 2	1892?	Bored, 4-inch	172	50	29	Wind	.....	Domestic	.....	.....
2878	W. P. Story	do	J-2	1893	do	172	49	37	do	.....	do	.....	.....
2879	T. E. Newlin	do	J-2	do	do	174	158	48?	31	do	do	.....	.....
2880	T. L. Gooch	do	I-2	1878	Bored, 7-inch	172	136	48	40	do	52.00	do	.....
2881	Mrs. A. Lynch	do	I, J-2	1887	do	169	58	33	do	.....	58.00	Domestic; stock	.....
2882	R. Stroud	do	J-2	1903	Bored, 5-inch	165	51	31	do	.....	43.50	Domestic	.....
2883	J. A. Montgomery	do	I-2	1898	Bored, 4-inch	168	60	30	do	.....	46.00	do	.....
2884	T. L. Gooch	do	I-2	1886	do	167	153	62	do	.....	55.00	Stock	.....
2885	T. P. McLane	do	I-2	1903	Bored, 5-inch	166	61	39	Hand	.....	57.70	Domestic	.....
2886	J. O. Castell	Santa Gertrudis	I-3	1902	Dug, 3 by 3 foot	144	137	9	32	do	.....	do	.....
2887	Frank Bonchard	do	J-3	1902	Bored, 4-inch	159	144	70	32	Wind	.....	Domestic; stock	.....
2888	C. J. Gish	Paso de Bartolo	J-3	1901	Bored, 5-inch	157	147	44	35	Hand	.....	Domestic	.....
2889	do	do	J-3	1901	do	158	147	86	33	do	.....	Stock	.....
2890	F. Bonchard	do	J-3	1897?	Bored, 2-inch	158	68	31	Wind	.....	35.00	Domestic	.....
2891	John Seppi	do	J-3	1903	Bored, 5-inch	159	146	58	34	do	.....	38.50	do
2892	J. A. Cover	do	J-3	1896	Bored, 2-inch	155	63	29	Hand	.....	52.00	do	.....
2893	M. J. Brooks	do	J-3	1896	do	154	60	32	Wind	.....	31.00	do	.....
2894	H. Miller	do	J-3	1900	Bored, 4-inch	151	143	51	Hand	.....	26.00	do	.....
2895	Aaron Miller	do	J-3	1901	Bored, 7-inch	153	142	60	33	Wind	.....	Domestic; stock	.....
2896	M. L. Kendal	do	J-3	1895	Bored, 5-inch	151	141	60	32	Hand	.....	48.00	do
2897	T. F. Stuckle	do	J-3	1896	Bored, 4-inch	150	78	33	do	.....	49.50	do	.....
2898	E. Poyorane	do	J-3	1895	Bored, 2-inch	150	30	52	do	.....	Domestic	do	.....
2899	J. M. McInnis	do	J-3	1892?	Bored, 4-inch	151	141	25	46	do	.....	do	.....

2900	W. C. Moore.	do	J-3	1893	Bored, 2-inch.....	152	40	Wind.....	37.00	do.....	do.....	do.....
2901	A. P. Ramirez.	do	J-2	1897	Dug, 3 by 3 foot...	155	148	9	45	do.....	do.....	do.....
2902	Mrs. M. Theland.	do	J-2	1894?	Bored, 4-inch.....	157	146	72	39	do.....	do.....	Domestic.....
2903	L. J. Lane.	do	J-2	1902	do.....	159	.....	105	33	do.....	do.....	Domestic; stock.....
2904	James Graham.	do	J-2	1895	Bored, 2-inch.....	161	.....	60	33	do.....	do.....	Domestic; stock.....
2905	do.....	do	J-2	1896?	Bored, 7-inch.....	162	151	31	37	Hand	do.....	Stock.....
2906	John T. Jones.	do	J-2	1896?	Bored, 4-inch.....	164	154	88	35	do.....	do.....	Domestic; stock.....
2907	Mrs. M. Pheland.	do	J-2	1876	Bored, 7-inch.....	167	156	42	35	Wind.	do.....	do.....
2908	J. O. Rogers.	do	J-2	1899	Bored, 2-inch.....	167	.....	55	34	do.....	do.....	Domestic.....
2909	J. T. Isbell.	do	K-2	1887	Bored, 4-inch.....	170	.....	74	31	do.....	do.....	Domestic; stock.....
2910	do.....	do	K-2	1903	do.....	176	.....	63	36	do.....	do.....	Domestic.....
2911	Chas. Sanderson.	do	K-2	1895?	Bored, 7-inch.....	174	163	49	40	Hand	do.....	Domestic.....
2912	H. W. Judson.	do	K-2	1899	Hydraulic, 2-inch.	174	.....	70	.....	Gas?	do.....	do.....
2913	do.....	do	K-2	1897	Bored, 4-inch.....	174	.....	68	30	Wind	70.00	Domestic; stock.....
2914	Pico School.	do	K-1, 2	1888?	do.....	177	.....	68	28	Hand	do.....	Domestic.....
2915	M. Holbrook.	do	K-1	1897	do.....	179	.....	65	27	Wind	55.00	Domestic; stock.....
2916	Whittier Water Co.	do	J, K-1	1898	Bored, 12-inch.....	195	178	152	27	Compressed air.	380.00	Domestic.....
2917	do.....	do	J, K-1	1898	do.....	195	178	150	.....	do.....	375.00	do.....
2918	Dan Phelan.	do	K-1	1897	Bored, 4-inch.....	197	182	44	35	Hand	33.00	Domestic; stock.....
2919	Theodore Castillo.	do	K-1	1899	Dug, 3 by 3 foot...	200	179	23	30	do.....	do.....	Domestic.....
2920	H. W. R. Strong.	do	K-1	1870?	Bored, 7-inch.....	212	158	75	80	Wind	do.....	Not used.....
2921	do.....	do	K-1	1902	Bored, 10-inch.....	210	166	500+	.....	do.....	do.....	Domestic.....
2922	R. McNees.	do	K-2	1889?	Bored, 4-inch.....	208	164	90	61	Wind	do.....	Domestic; stock.....
2923	Whittier State School.	do	L-2	1903	Bored, 12-inch.....	222	168	800	.....	do.....	do.....	Domestic; stock.....
2924	J. Sorensen.	do	K-2	1878	Bored, 7-inch.....	203	.....	400	.....	do.....	1,200.00	Not used.....
2925	do.....	do	K-2	1868	Dug, 3 by 3 foot...	202	164	46	92	Wind	do.....	Domestic.....
2926	A. King.	do	K-2	1887	Bored, 4-inch.....	171	.....	65	72	do.....	do.....	Domestic; stock.....
2927	J. King.	do	K-3	1888	do.....	167	157	52	68	Hand	do.....	Stock.....
2928	C. E. Archer.	do	K-3	1900	Bored, 7-inch.....	165	156	80	.....	Gas	80.00	Irrigation.....
2929	do.....	do	K-3	1900	Bored, 4-inch.....	163	.....	60	63	Wind	35.00	Domestic.....
2930	J. W. See.	do	K-3	1898	do.....	165	156	51	63	Hand	48.00	do.....
2931	do.....	do	K-3	1897?	do.....	160	155	25	90	do.....	48.00	Stock.....
2932	S. V. Gregg.	do	K-3	1889?	do.....	162	153	54	72	do.....	do.....	Domestic.....
2933	G. W. Cole.	do	K-3	1892?	Bored, 7-inch.....	164	153	75	98	Wind	do.....	do.....
2934	B. S. Cole.	do	K-3	1897	do.....	161	152	72	91	do.....	do.....	Domestic; stock.....

Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of face.	Depth of well.	Solids per 100,000.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.	Miner's inches.	
2935	E. R. King	Paso de Bartolo	K-3	1890?	Bored, 4-inch.....	165	54	57	\$50.00	.....	Domestic.....	.....	.....	.....	.....
2936	L. Terkelson	do	K-3	1901	do.....	162	153	49	47	Hand.....	do.....	do.....	do.....	do.....	do.....
2937	Mrs. M. A. Nicholson	do	K-3	1902	Bored, 5-inch.....	162	156	75	57	do.....	do.....	do.....	do.....	do.....	do.....
2938	M. M. Burke	do	K-3	1903	do.....	166	75	83	Wind.....	.....	do.....	do.....	do.....	do.....	do.....
2939	C. C. Smith	do	K-3	1899?	Bored, 4-inch.....	165	75	47	do.....	.....	do.....	do.....	do.....	do.....	do.....
2940	E. Johnson	do	K-3	1900	do.....	164	156	59	42	Hand.....	do.....	do.....	do.....	do.....	do.....
2941	Mrs. M. J. King	do	K-3	1893?	do.....	161	65	36	Wind.....	.....	do.....	do.....	do.....	do.....	do.....
2942	A. J. Nicholson	do	J, K-3	1903	do.....	158	149	59	42	Hand.....	do.....	do.....	do.....	do.....	do.....
2943	Mrs. M. Burghardt	do	J-3	1895	Bored, 2-inch.....	155	65	37	do.....	.....	Domestic.....	Domestic.....	Domestic.....	Domestic.....	Domestic.....
2944	D. E. Poyorena	do	K-3	1893	Bored, 4-inch.....	155	146	49	41	do.....	do.....	do.....	do.....	do.....	do.....
2945	P. T. Swaine	do	J, K-3	1893	Bored, 7-inch.....	155	143	64	40	Wind.....	.....	do.....	do.....	do.....	do.....
2946	A. B. Briswaltor	do	K-3	1902	Bored, 4-inch.....	154	143	133	48	Hand.....	113.00	do.....	do.....	do.....	do.....
2947	J. T. King	Santa Gertrudis	K-3	1902	Bored, 6-inch.....	156	70	59	Wind.....	.....	Domestic; stock.	Domestic; stock.	Domestic; stock.	Domestic; stock.	Domestic; stock.
2948	Joe Hynes	do	K-3	1888	Bored, 4-inch.....	159	148	103	35	do.....	do.....	do.....	do.....	do.....	do.....
2949	Geo. Hatch	Paso de Bartolo	K-3	1890?	do.....	159	70	37	do.....	.....	do.....	do.....	do.....	do.....	do.....
2950	John Lewis	Santa Gertrudis	J-3	1898	do.....	156	75	40	do.....	.....	do.....	do.....	do.....	do.....	do.....
2951	Los Nietos School	do	J, K-3	1897	Bored, 6-inch.....	156	60	44	Hand.....	.....	Packing.....	Packing.....	Packing.....	Packing.....	Packing.....
2952	Los Nietos Packing House.	do	J-4	1880?	Dug, 4 by 4 foot.....	160	147	48	43	do.....	do.....	do.....	do.....	do.....	do.....
2953	L. Duran	do	J-4	1880?	Dug, 2 by 3 foot.....	162	138	25	48	do.....	do.....	do.....	do.....	do.....	do.....
2954	Mr. Girado	do	J-4	1901	Bored, 6-inch.....	160	137	27	41	do.....	do.....	do.....	do.....	do.....	do.....
2955	Max Schwede	do	J-4	1901	Bored, 7-inch.....	159	92	39	do.....	do.....	do.....	do.....	do.....	do.....	do.....
2956	Lucy Girado	do	J-4	1901	Bored, 4-inch.....	157	90	38	do.....	do.....	do.....	do.....	do.....	do.....	do.....
2957	Central Oil Wells	do	K-1	1900	.....	157	86	33	do.....	.....	do.....	do.....	do.....	do.....	do.....

## WELLS IN DOWNEY QUADRANGLE.

2958	Murphy Oil Co.	do	K-4	1903	.....do	157	117	32	do	do	do
2959	J. D. Rinnez	do	K-4	1901	Bored, 7-inch	161	85	29	Wind	.....	do
2960	D. C. Cartwright	do	K-4	1901	Bored, 6-inch	159	70	35	do	.....	do
2961	E. W. Pitman	do	K-4	1870	Bored, 7-inch	157	134	103	30	do	do
2962	F. A. Sanchez	do	K-4	1900	.....do	159	130	36	55	do	do
2963	do	do	K-4	1901	Bored, 10-inch	158	131	205	.....	Compressed air.	40
2964	T. L. Sanchez	do	K-4	1898	Bored, 7-inch	158	90	58	Wind	270.00	\$1,700.00
2965	Sophia Elsaele	do	K-4	1892	Dug, 5-foot diameter.	160	130	31	Hand	81.00	Irrigation.
2966	Mrs. Linares	do	K-4	1877	Dug, 5 by 5 foot	157	130	28	54	do	do
2967	do	do	K-4	1887	Dug, 4 by 4 foot	155	135	22	79	do	do
2968	V. D. Acost	do	K-4	1888	.....do	152	135	19	63	do	do
2969	G. Martinez	do	K-4	1898	Dug, 2½ by 2½ foot.	145	137	11	59	do	do
2970	Fred Valla	do	K-4	1903	Bored, 4-inch	148	148	70	31	do	do
2971	do	do	L-3	1896	.....do	145	145	54	73	Wind	50.00
2972	Geo. Quigley	do	L-3	1900	Dug, 2 by 4 foot	144	131	9	do	do	do
2973	C. E. Cole	do	L-3	1899	Bored, 7-inch	146	135	107	56	do	do
2974	B. Sharpless	do	L-3	1887?	Bored, 4-inch	149	149	120	47	do	do
2975	J. Cole	do	L-3	.....	Bored, 7-inch	162	162	65	89	do	do
2976	Evergreen Water Co.	do	L-3	1900	Bored, 9½-inch	187	155	150	Gas	*5,400.00	Irrigation.
2977	do	do	L-3	1900	Bored, 12-inch	187	155	84	do	do	do
2978	J. Cole	do	L-3	1894	Bored, 4-inch	177	151	60	75	do	do
2979	C. A. Landreth	do	L-3	1901	.....do	191	160	78	102	Hand	75.00
2980	Santa Gertrudis Irrigation Co.	do	L-4	1899	Bored, 10-inch	.....	53	.....	.....	Not used	do
2981	do	do	L-4	1898	Bored, 7-inch	143	136	54	88	Steam	Irrigation.
2982	do	do	L-4	.....	Bored, 12-inch	143	136	32	do	do	do
2983	do	do	L-4	1899	Bored, 10-inch	143	136	52	do	do	do
2984	do	do	L-4	1899	.....do	143	144	44	.....	Not used	do
2985	H. V. Vorce	do	L-4	1894	Hydraulic, 2-inch.	144	.....	50	81	Hand	Domestic.
2986	do	do	L-4	1897	Bored, 10-inch	146	139	32	Gas	75.00	Irrigation.
2987	P. M. Mowry	do	L-4	1901	Driven, 1½-inch	145	145	18	75	Hand	Domestic.
2988	Gunn Ranch	do	L-4	1895?	Bored, 3-inch	145	145	40	63	do	Domestic; stock
2989	C. L. Wheeler	do	L-4	1900	Bored, 7-inch	150	125	45	107	Gas	Irrigation.
2990	Jacob Chase	do	L-4	1887?	Bored, 4-inch	144	128	45	104	Wind	Domestic.
2991	W. O. Graham	do	L, M-4	1895	Driven, 1½-inch	146	146	28	120	Hand	do

## Wells in the Downey quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Method of lift.		Cost of machinery.	Use of water.	Quantity of water. inches.
						Depth of well.	Elevation of surface feet.			
2992	John Wood	Santa Gertrudis	M-4	1898	Bored 10-inch	148	122	660	Stock.	.....
2993	do	do	M-4	1904	Bored, 7-inch	150	127	46	Domestic.	.....
2994	Colma Tract Water Co.	do	L-4, 5	1892	Bored, 10-inch	133	118	152	Irrigation.	.....
2995	do	do	L-4, 5	1899	do	135	118	154	do	110
2996	V. Rais	do	L-5	1887?	Bored, 4-inch	145	130	35	Stock.	.....
2997	T. Resndes	do	M-4, 5	1898	Dug, 3 by 3 foot	146	130	19	Domestic.	.....
2998	J. Sanchez	do	M-4	1901	Bored, 4-inch	183	148	47	Stock.	.....
2999	A. A. Gueirre	do	N-5	1900	Dug, 4 by 4 foot	209	178	33	Domestic.	.....
3000	M. Contreras	do	N-5	1901	Dug, 3-foot diameter.	203	181	23	Domestic.	.....
3001	R. S. Lambert	do	N-5	1895	Dug, $3\frac{1}{2}$ -foot diameter.	227	192	37	Stock.	.....
3002	G. W. Fulwider	do	N-4	1902	Bored, 7-inch	232	192	116	Stock.	.....
3003	Sam Mendenhall	do	N-5	1901	Bored, 10-inch	195	174	28	Stock.	.....
3004	H. L. Riggins	do	N-4	1900	Bored, 6-inch	255	185	190	Stock.	.....
3005	Cyrus Baldwin	do	N-4	1901	Bored, 7-inch	278	190	165	Stock.	.....
3006	Chas. Scott	do	N-5	1897	Bored, 4-inch	225	140	do	Not used.	.....
3007	E. W. Cole	do	N-5	1898?	Bored, 7-inch	222	182	90	Stock.	.....
3008	Walter Jackson	do	N-4	1901	do	253	180	106	Stock.	.....
3009	Wm. K. Green	do	M, N-4	1896	do	270	327	327	Irrigation.	.....
3010	N. Thill	do	M-4	1901	Bored, 5-inch	175	62	120	Domestic.	.....
3011	Mrs. Stoddard	do	M-4	1897	Bored, 4-inch	168	100	172	Stock.	.....
3012	J. B. Willey	do	M-4	1896	do	157	58	130	Stock.	.....

3013	Woodward & Graham.	do	Bored, 10-inch	173	140	82	106	Gas	300.00	Irrigation	60
3014	T. H. Woodward.	do	Bored, 7-inch	173	130	65	106	Wind	-	Domestic	-
3015	J. L. Gales.	do	Bored, 4-inch	188	130	130	130	Hand	-	Not used	-
3016	E. W. Hazzard.	do	do	163	96	96	126	Wind	-	Domestic	-
3017	W. T. Brookaw.	do	Bored, 7-inch	167	78	78	134	Hand	-	do	-
3018	Geo. L. Hazzard.	do	do	215	165	165	165	Wind	-	Not used	-
3019	H. C. Baldwin.	do	do	280	155	154	154	do	-	-	-
3020	J. B. Willey.	do	do	127	127	170	91	Artesian	-	-	-
3021	C. M. Mayer.	do	do	265	173	163	32	Gas	150.00	Irrigation	2

## Wells in Los Bolsas quadrangle.

[\* Cost of well and equipment combined; † yield estimated or statement of owner taken; ? doubtful.]

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Miner's inches.			
														Feet.	Feet.		
1	M. J. Edwards.	La Bolsa Chica	M-1	1874	Bored, 7-inch	19	116	25	64	Artesian	.....	29	.....	4	.....	4	
2	Chico district school.	do	M-1	1894	Bored, 2-inch	21	310	27	64	.....	do	.....	\$50.00	.....	4	.....	
3	W. J. Edwards	do	M-1	1896	do	20	20	125	26	64	.....	.....	60.00	.....	8	.....	
4	do	do	M-2	1899	Bored, 3-inch	20	20	128	25	65	.....	do	.....	do	10	.....	
5	do	do	M-2	1898	Bored, 3½-inch	19	130	26	64	.....	do	.....	45.00	.....	5½	.....	
6	do	do	M-2	1899	Bored, 2-inch	19	119	11.4	64	.....	do	.....	65.00	.....	4	.....	
7	do	do	M-2	1899	do	18	18	165	26	64	.....	do	.....	35.00	.....	4	.....
8	do	do	N-2	1901	Bored, 4-inch	19	19	64	26	64	.....	do	.....	do	13	.....	
9	do	do	M-2	1900	do	19	19	170	do	.....	do	.....	30.00	.....	72	do	
10	do	do	M-2	1896	Bored, 2-inch	19	19	172	do	.....	do	.....	do	.....	14	do	

Wells in *Las Bolsas quadrangle*—Continued.

Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.	Miner's inches.	
														do . . . . .	
11 W. J. Edwards	La Bolsa Chica	N-2	1898	Bored, 3½-inch . . . . .	19	19	74	26	Artesian . . . . .	\$30.00	3				
12 do	do	N-2	1898	do . . . . .	19	19	75	do	do . . . . .	do	4				
13 do	do	M-2	1898	do . . . . .	19	19	75	30	do . . . . .	do					
14 do	do	M-1	1898	do . . . . .	20	194	27	65	do . . . . .	do					
15 do	do	M-2	1897	Bored, 7-inch . . . . .	20	160	26	65	do . . . . .	do					
16 do	do	N-1	1898	Bored, 2-inch . . . . .	20	119	do	do	do . . . . .	do					
17 do	do	M-2	1899	Bored, 3-inch . . . . .	18	120	26	65	do . . . . .	do					
18 Samson Edwards	do	M-1	1900	Bored, 2-inch . . . . .	19	19	135	26	do . . . . .	do					
19 do	do	M-2	1900	Bored, 3-inch . . . . .	19	19	135	26	do . . . . .	do					
20 do	do	M-1	1898	Bored, 3½-inch . . . . .	19	19	135	27	do . . . . .	do					
21 do	do	M-2	1902	Bored, 6-inch . . . . .	16	16	230	do	do . . . . .	do					
22 Frank Bohannan	do	M-2	1901	Bored, 2-inch . . . . .	16	16	100	25	do . . . . .	do					
23 do	do	M-2	1902	Bored, 4-inch . . . . .	15	15	214	do	do . . . . .	do					
24 W. J. Edwards	do	M-2	1901	do . . . . .	15	15	100	27	do . . . . .	do					
25 do	do	M-2	do	Bored, 3½-inch . . . . .	15	15	do	do	do . . . . .	do					
26 do	do	M-2	do	Bored, 2-inch . . . . .	21	21	127	25	do . . . . .	do					
27 W. H. Johnson	do	M-2	do	M-2	15	15	130	65	do . . . . .	do					
28 do	do	M-2	do	M-2	15	15	238	25	do . . . . .	do					
28a do	do	M-2	do	Bored, 7-inch . . . . .	15	15	77	do	do . . . . .	do					
29 do	do	M-2	do	Bored, 2-inch . . . . .	15	15	do	do	do . . . . .	do					
30 do	do	M-2	do	Bored, 4-inch . . . . .	15	15	160	26	do . . . . .	do					
31 Sampson Edwards	do	M-2	1904	do . . . . .	15	15	68	27	do . . . . .	do					
32 do	do	M-2	1900	do . . . . .	15	15	70	do	do . . . . .	do					
33 do	do	M-3	1898	Bored, 2-inch . . . . .	14	14	69	do	do . . . . .	do					



Wells in *Las Bolsas quadrangle*—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Depth of well.	Solids per 100,000.	Temperture of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Miner's inches.
67	J. T. Shaffer	La Bolsa Chica	N-2	1899	Bored, 7-inch	17	128	Artesian	Irrigation	do	\$100.00	do	Irrigation	+81
68	T. J. Lewis	do	N-2	1899	do	16	90?	do	do	do	90.00	do	do	12
69	do	do	N-3	1901	do	15	65	do	do	do	do	do	do	+19
70	R. R. & I. J. Gerhart	do	N-3	1896	Bored, 4-inch	15	30	28	64	do	do	do	do	8
71	do	do	N-3	1900	Hydraulic, 3-inch	15	30?	do	do	do	do	do	do	3
72	Geo. Gerhart	do	N-3	1899	Bored, 4-inch	14	74	26	64	do	do	do	do	14
73	do	do	M, N-3	1900	do	13	76	do	do	do	do	do	do	+17
74	H. H. Bentley	do	N-3	1897	Bored, 2-inch	16	71	25	64	do	30.00	Stock; irrigation	Irrigation	+7
75	do	do	N-3	1901	Bored, 4-inch	16	72	do	do	do	40.00	do	Irrigation	+20
76	do	do	M-2, 3	1902	Bored, 2-inch	16	71	do	do	do	30.00	do	do	5
77	B. A. Farrer	do	N-3	1898	Bored, 4-inch	16	72	26	64	do	do	Domestic; irrigation	Domestic; irrigation	8
78	do	do	N-3	1901	do	14	78	do	do	do	40.00	Irrigation	Irrigation	+19
79	do	do	N-3	1904	do	15	78	do	do	do	40.00	do	do	+18
80	W. T. Clark	do	M-3	1903	do	13	76	26	64	do	do	do	do	17
81	do	do	M-3	1898	do	13	74	do	do	do	40.00	do	do	10
82	do	do	M-3	1898	Bored, 7-inch	13	73	do	do	do	100.00	do	do	7
83	W. H. McGirk	do	N-3	1901	Bored, 2-inch	13	70	25	66	do	do	Domestic; irrigation	Domestic; irrigation	+8
84	do	do	N-3	1900	do	12	68	do	do	do	30.00	Irrigation	Irrigation	+8
85	D. McGirk	do	N-3	1904	do	13	74	do	do	do	35.00	do	do	+9
86	do	do	N-3	1895	Bored, 4-inch	12	75	26	64	do	do	Domestic; irrigation	Domestic; irrigation	17
87	D. H. Thompson	do	N-3	1901	Bored, 2-inch	14	72	do	do	do	35.00	Irrigation	Irrigation	8

## WELLS IN LAS BOLSAS QUADRANGLE.

88	M. C. Cole	do	N-3	1895	Bored, 3-inch	15	15	85	25	64	do	45.00	Domestic; irrigation.	12
89	F. J. Mallett	do	N-3	1897	Bored, 7-inch	17	17	120	27	65	do	90.00	do	7
90	do	do	N-3	1901	do	16	16	140	do	do	125.00	Irrigation	+ 29	
91	Joseph Walton	do	N-3	1899	do	16	16	100	do	do	do	do	do	9
92	J. G. Blaylock	do	N-3	1896	do	16	16	90	26	63	do	75.00	Domestic	.
93	J. M. Cain	do	N-3	1900	Hydraulic, 3-inch	16	16	59	do	do	30.00	Irrigation	10	
94	do	do	N-3	do	Hydraulic, 2-inch	16	16	155	Wind	do	75.00	Domestic; irrigation	.	
95	J. L. Worthy	do	N-3	1900	Hydraulic, 3-inch	16	16	130	do	Artesian	75.00	do	.	
97	Henry Winters	do	N-3	1895	Hydraulic, 2-inch	16	16	138	28	65	do	do	.	
98	do	do	N-3	1896	Bored, 4-inch	16	16	138	do	do	do	Irrigation	+ 20	
99	Jacob Walton	do	N-3	1896	Bored, 7-inch	17	17	136	do	do	do	do	+ 20	
100	W. S. Burdick	do	N-2	1896	do	18	18	85?	27	63	do	75.00	Domestic; irrigation	7
101	do	do	N-2	1899	Bored, 3-inch	18	18	90?	27	64	do	45.00	Irrigation	+ 8
102	D. Rogers	do	N-2	1898	Bored, 2-inch	18	18	85	do	do	do	35.00	Domestic; irrigation	4
103	do	do	N-2	1900	Bored, 7-inch	18	18	84	do	do	do	do	Irrigation	2
104	do	do	N-2	1899	Bored, 2-inch	17	17	85	do	do	do	40.00	do	4
105	A. J. Crane	do	N-2	1895	Bored, 7-inch	17	17	79	25	64	do	do	Domestic; irrigation	7
106	do	do	N-2	1900	do	17	17	175	25	64	do	250.00	Irrigation	7
107	Golden West Celery and Produce Co.	do	N-2	1903	Bored, 4-inch	17	17	198	23	64	do	do	Domestic; irrigation	16
108	do	do	N-2	1894	Bored 7-inch	18	18	100	27	64	do	do	Irrigation	24
109	do	do	N-2	1893	do	18	18	90	do	do	100.00	do	do	1
111	do	do	N-2	1901	Bored, 3-inch	17	17	98	27	64	do	65.00	do	8
112	do	do	N-2	1901	Bored, 7-inch	17	17	96	do	do	do	do	do	7
113	do	do	N-2	1901	Bored, 2-inch	17	17	120	do	do	60.00	do	do	4
114	do	do	N-2	1896	Bored, 7-inch	17	17	188	26	65	do	do	do	2
115	do	do	N-2	1892	do	17	17	97	do	do	do	+ 7	do	7
116	do	do	N-2	1901	Bored, 3-inch	17	17	120	do	do	do	do	do	10
117	do	do	N-3	1901	do	17	17	110	do	do	do	do	do	9
118	do	do	N-2	1894	Bored, 4-inch	17	17	110	26	64	do	do	do	8
119	do	do	N-3	1894	Hydraulic, 4-inch	17	17	108	do	do	do	do	do	8
120	do	do	N-3	1898	Bored, 4-inch	17	17	140	do	do	do	do	do	15

Wells in *Las Bolsas* quadrangle—Continued.

Number of well.	Owner.	Location.	Map location	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Soils per 100,000.	Temperature of water.	Cost of lift.	Quantity of water.			
												Feet.	Feet.	°F.	Miner's inches.
123	B. B. Townsend	La Bolsa Chica...	N-2.....	1903	Bored, 4-inch.....	17	17	260	25	66	Artesian.....	\$200.00		Irrigation.....	† 20
124	do	do.....	N-2.....		Bored, 7-inch.....	17	17	160	do	do	do.....	do		do.....	† 24
125	J. O. Slaback	do.....	N-2.....	1901	Bored, 4-inch.....	17	17	68	27	64	do.....	40.00		do.....	† 21
126	Wm. Kassmann	do.....	N-2.....	1900	Bored, 7-inch.....	18	18	367	24	64	do.....	400.00		Domestic; irrigation; stock.	8
127	do	do.....	N-2.....	1901	Bored, 3-inch.....	19	19	196	do	do	120.00			Irrigation.....	10
128	do	do.....	N-2.....	1903	Bored, 3½-inch.....	18	18	194	28	64	do.....	do		do.....	8
129	T. J. Lewis	do.....	N-2.....		Bored, 7-inch.....	18	18	86	29	64	do.....			Domestic; irrigation.	† 7
130	do	do.....	N-2.....	1904	Bored, 4½-inch.....	18	18	193	29	64	do.....			Irrigation.....	5
131	Mr. Hazelton	do.....	N-2.....	1901	Bored, 2-inch.....	19	19	128	27	65	do.....	60.00		Domestic; stock.....	4
132	do	do.....	N-2.....		Bored, 3-inch, inside of 7-inch.	19	19	324	27	64	do.....			Irrigation.....	2
133	W. T. Clark	do.....	N-2.....	1900	Bored, 2-inch.....	20	20	209	do	do	60.00			Domestic; irrigation; stock.	5
134	do	do.....	N-2.....	1904	Hydraulic, 4-inch.	17	17	232	32	64	do.....			Irrigation.....	18
135	do	do.....	N-1.....	1896	Bored, 7-inch.....	18	18	75	do	do	45.00			do.....	10
136	do	do.....	N-1.....	1897	do.....	18	18	75	30	64	do.....	do		do.....	2
137	do	do.....	N-2.....	1880	do.....	19	19	80	29	64	do.....	55.00		Irrigation; domestic.	4
138	do	do.....	N-1.....	1896	do.....	22	22	82	do	do	55.90			Irrigation.....	4
139	W. H. Edwards	do.....	N-1.....		do.....	22	22	120	33	64	do.....	do		do.....	24
140	do	do.....	N-1.....		do.....	20	20	104	29	64	do.....	do		do.....	12
141	do	Las Bolsas.....	N-1.....		Bored, 2-inch.....	20	20	97	30	64	do.....	do		do.....	6

## WELLS IN LAS BOLSAS QUADRANGLE.

142	R. E. Larter	do	N-1	1874	Bored, 7-inch	25	25	102	64	do	Domestic; irrigation.	12
143	do	do	N-1	1904	Hydraulic, 3-inch.	25	25	357	28	64	Irrigation.	do
144	Mr. Wayman	do	N-1	do	Bored, 2-inch	22	22	80	33	64	Irrigation; stock.	9
145	R. E. Larter	do	N-1	do	Bored, 7-inch	22	22	245	27	64	Irrigation.	11
146	H. F. Penhall	do	N-1	1904	Hydraulic, 3-inch.	23	23	315	28	64	do	do
147	do	do	N-1	1884	Bored, 7-inch	23	23	80	do	200.00	do	Small.
148	do	do	N-1	1902	Hydraulic, 2-inch.	24	24	327	do	do	do	4
149	Mrs. M. J. Larter	do	M, N-1	do	Bored, 7-inch	22	22	72	30	64	Irrigation; stock.	†6
150	E. M. Keller	La Bolsa Chica	M-1	do	do	20	20	141	26	64	Domestic; irrigation.	4
151	do	do	M-1	do	Bored, 2-inch	19	19	100	26	64	Irrigation.	do
152	do	do	M-1	do	do	19	19	123	25	64	do	4
153	Mrs. H. Rogers	do	M-1	1900	Bored, 3-inch	17	17	232	26	66	Domestic; stock.	10
154	do	do	M-1	1876	Bored, 7-inch	17	17	87	do	do	Domestic; stock.	Small.
155	J. Peters	do	L-1	do	do	17	17	80	26	65	Domestic; stock.	Small.
156	Frank Wakeham	do	L-1	do	Bored, 3-inch	20	20	210	23	66	Irrigation.	do
157	J. H. Edwards	Las Bolsas	N-1	do	do	22	22	90	30	64	Not used.	10
158	do	do	N-1	1899	Bored, 7-inch	22	22	137	do	do	Irrigation.	9
159	do	do	N-1	1899	Bored, 3-inch	21	21	117	29	64	do	do
160	Mr. Keifhaber	do	N-1	1877	Bored, 7-inch	22	22	100	29	64	Irrigation; stock.	12
163	A. B. Bolham	do	N-1	1876?	do	27	27	48	36	64	Domestic; stock.	Small.
164	C. N. Hickox	La Bolsa Chica	L-2	1902	Bored, 4-inch	20	20	136	27	63	Domestic; irrigation.	†14
165	Chas. Waters	do	L-2	1903	Bored, 2-inch	20	20	90	do	do	Irrigation.	do
166	do	do	L-2	1903	Hydraulic, 2-inch.	20	20	51	do	do	Irrigation; stock.	2
167	do	do	L-2	1901	Bored, 4-inch	17	17	110	25	65	Irrigation.	do
168	A. D. Cleaver	do	L-2	1901	do	17	17	144	25	66	do	2
169	J. J. Graham	do	M-3	1901	Bored, 7-inch	30	30	302	25	70	Domestic; irrigation.	2
170	do	do	M-3	1901	do	30	30	274	do	do	Irrigation.	2
171	W. Shamrock	do	M-3	1903	Bored, 2-inch	16	16	55	27	do	Irrigation.	6
172	do	do	M-3	1903	do	16	16	58	do	do	do	6
173	Ed. More	do	M-3	1899?	Bored, 4-inch	17	17	70	do	do	do	4
174	do	do	M-3	1904	Bored, 3½-inch	25	25	70	24	64	do	12
175	do	do	M-3	1904	do	17	17	281	24	69	do	15

Wells in *Las Bolsas quadrangle*—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
176	A. D. Cleaver.	La Bolsa Chica...	M-3	1904	Bored, 3-inch.	17	84	24	64	Artesian...	Irrigation...	10	Irrigation...	Miner's inches.
177	Wm. Metzger	do	M-3	do	Bored, 2-inch.	16	100	25	64	do	do	4	do	do
178	do	do	M-3	do	Bored, 7-inch...	17	64	do	do	do	do	4	do	do
179	Mr. Robertson	do	M-3	do	do	16	16	26	64	do	do	4	do	do
181	W. H. Bently	do	M-3	1897	Hydraulic, 2-inch.	17	135	27	64	do	Stock...	5	Stock...	do
182	J. B. Robertson	do	M-3	1903	Bored, 2-inch	16	70	65	66	do	Irrigation...	7	Irrigation...	do
183	J. M. Waters	do	M-3	1902	do	16	16	14	66	do	do	7	Domestic; stock...	do
184	do	do	M-3	1902	do	14	14	66	66	do	do	5	Domestic; stock...	do
185	do	do	M-3	1900	do	14	14	66	66	do	do	4	Irrigation...	do
186	do	do	M-4	1898	Bored, 4-inch	14	67	do	do	do	do	4	do	do
187	L. R. Metzger	do	M-3	do	do	15	80	25	66	do	do	4	do	do
188	do	do	M-3	do	Bored, 2-inch	15	15	60	60	do	do	4	do	do
191	Wm. Shamrock	do	L-3	1898	Bored, 3-inch...	20	70 <sup>2</sup>	21	Wind	do	Domestic; stock...	4	Domestic; stock...	do
192	do	do	L, M-3	1904	Bored, 7-inch...	14	220	24	70	Artesian...	Irrigation...	7	Irrigation...	do
193	John McDonald	do	M-3	1894?	Bored, 6-inch...	15	53	22	66	do	do	36	Duck pond...	do
194	Las Bolsas Land Co.	do	L-3	do	Hydraulic, 2-inch.	12	48	21	66	do	do	4	do	do
195	do	do	L-3	do	do	14	55	22	65	do	do	6	do	do
196	do	do	L-3	do	do	13	48	do	do	do	do	6	do	do
197	Geo. Travoli	do	M-3	1899	Hydraulic, 3-inch.	15	65	25	64	do	Irrigation...	10	Irrigation...	do
198	do	do	M-3	1903	do	15	100 <sup>2</sup>	do	do	do	do	6	do	do
199	do	do	M-3	1899	Hydraulic, 2-inch.	15	70	do	do	\$35.00	do	5	Domestic; stock...	do
200	do	do	M-3	1902	do	15	73	do	do	35.00	do	4	Domestic; stock...	do
201	do	do	M-3	1900	do	15	68	do	do	30.00	Irrigation...	5	Irrigation...	do



Wells in *Las Bolsas quadrangle*—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000 water.	Temp. perature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.	Miner's inches.
236	M. C. Cole	La Bolsa Chica	N-3	1900	Bored, 2-inch.....	16	16	60	Artesian.....	.....	Irrigation.....	.....	.....	.....	.....	6
237	do	do	N-3	1895	Bored, 7-inch.....	17	17	130	do	do	do	do	do	do	do	2
238	do	do	N-3	1895	do.....	19	19	131	do	do	do	do	do	do	do	11
239	do	do	N-3	1904	Bored, 7-inch, 184 feet; 4-inch, 125 feet.	30	30	309	25	70	do	do	do	do	do	12
240	do	do	N-3	.....	Bored, 7-inch.....	30	30	325	Wind.....	.....	Stock.....	.....	.....	.....	.....	.....
241	Frank Lintner	do	N-3	1892	Bored, 4-inch.....	16	16	97	64	Artesian.....	\$60.00	.....	Domestic; irrigation.	.....	.....	14
242	H. S. Brakebill	do	N-3	1899	do.....	16	16	69	26	65	do	45.00	.....	Irrigation.....	.....	18
243	do	do	N-3	1896	Bored 7-inch.....	16	16	49	do	do	do	do	do	do	do	4
244	John Lawrence	do	N-3	1899	Bored, 3-inch.....	16	16	49	25	65	do	do	do	do	do	Small.
245	Frank Lintner	do	N-3	1902	Bored, 2-inch.....	15	15	72	do	do	do	32.00	do	do	do	5
246	do	do	N-3	1899	Bored, 4-inch.....	16	16	97	do	do	do	60.00	do	do	do	+14
247	do	do	N-3	1897	do.....	16	16	68	26	64	do	45.00	do	do	do	4
248	B. F. Housler	do	N-3	.....	Bored, 3-inch.....	19	19	do	do	do	do	do	do	do	do	Small.
249	do	do	N-3	.....	Bored, 4-inch.....	18	18	65	27	64	do	do	do	do	do	1
250	S. G. Huff	do	N-4	1898	Bored, 3-inch.....	15	15	46	do	do	28.00	do	do	do	do	Small.
251	W. H. Hicks	do	N-4	1898	Hydraulic, 2-inch.	22	22	85	Hand	.....	Stock; irrigation.	.....	.....	.....	.....	.....
252	Huntington Beach Co.	Las Bolsas	N-5	1898	Bored, 7-inch.....	60	60	220	37	Wind.....	.....	.....	.....	.....	.....	.....
254	do	do	N-7	.....	Bored, 10-inch.....	30	30	200 <sup>a</sup>	35	Wind, gas.....	.....	.....	Domestic.....	.....	.....	.....
256	Bolsa Land Co. (gun club).	do	L-3	.....	Bored, 2-inch.....	10	10	300	83	66	Artesian.....	.....	.....	.....	.....	Small.
257	Lometa Land Co.	La Bolsa Chica	K-3	.....	Bored, 7-inch.....	30	30	.130	20	.....	Wind.....	.....	Domestic; stock.....	.....	.....	.....



Wells in *Las Bolsas quadrangle*—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.	Miner's inches.	
292	Lometa Land and Water Co. (gun club).	La Bolsa Chica.	L-2.....	1903	Hydraulic, 4-inch.	15	15	.....	.....	.....	Artesian.....	.....	.....	.....	.....	.....	.....
293	do.....	do.....	L-2.....	1903	do.....	15	15	.....	26	66	do.....	.....	do.....	.....	do.....	.....	.....
294	do.....	do.....	L-2.....	1903	do.....	15	15	.....	27	66	do.....	.....	do.....	.....	do.....	.....	.....
295	do.....	do.....	L-2.....	1903	Hydraulic, 3-inch.	15	15	.....	.....	.....	do.....	.....	do.....	.....	do.....	.....	.....
296	do.....	do.....	L-2.....	1903	Hydraulic, 4-inch.	15	15	.....	.....	.....	do.....	.....	do.....	.....	do.....	.....	.....
297	F. Dimock.	do.....	K-1.....	1898	Bored, 2-inch.....	20	20	124	26	66	do.....	.....	Domestic; irrigation.	.....	Domestic; irrigation.	.....	6
298	do.....	do.....	K-1.....	1902	do.....	22	22	152	31	.....	do.....	.....	Irrigation.....	.....	Irrigation.....	.....	7
299	do.....	do.....	L-2.....	1903	do.....	22	22	190	.....	.....	do.....	.....	do.....	.....	do.....	.....	.....
300	Los Alamitos.....	J-1.....	J-1.....	.....	Bored, 3-inch.....	25	25	300+	19	76	do.....	.....	Stock.....	.....	Stock.....	.....	9
301	Anaheim Beach Co.	do.....	I-1.....	.....	Dug, 4½ by 4½ foot.	15	15	12	68	63	Hand.....	.....	Domestic; stock.....	.....	Domestic; stock.....	.....	.....
302	do.....	do.....	I-1.....	.....	Bored, 7-inch.....	15	15	100	200+	63	.....	.....	Not used.....	.....	Not used.....	.....	.....

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## O

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Correspondence should be addressed to

THE DIRECTOR,

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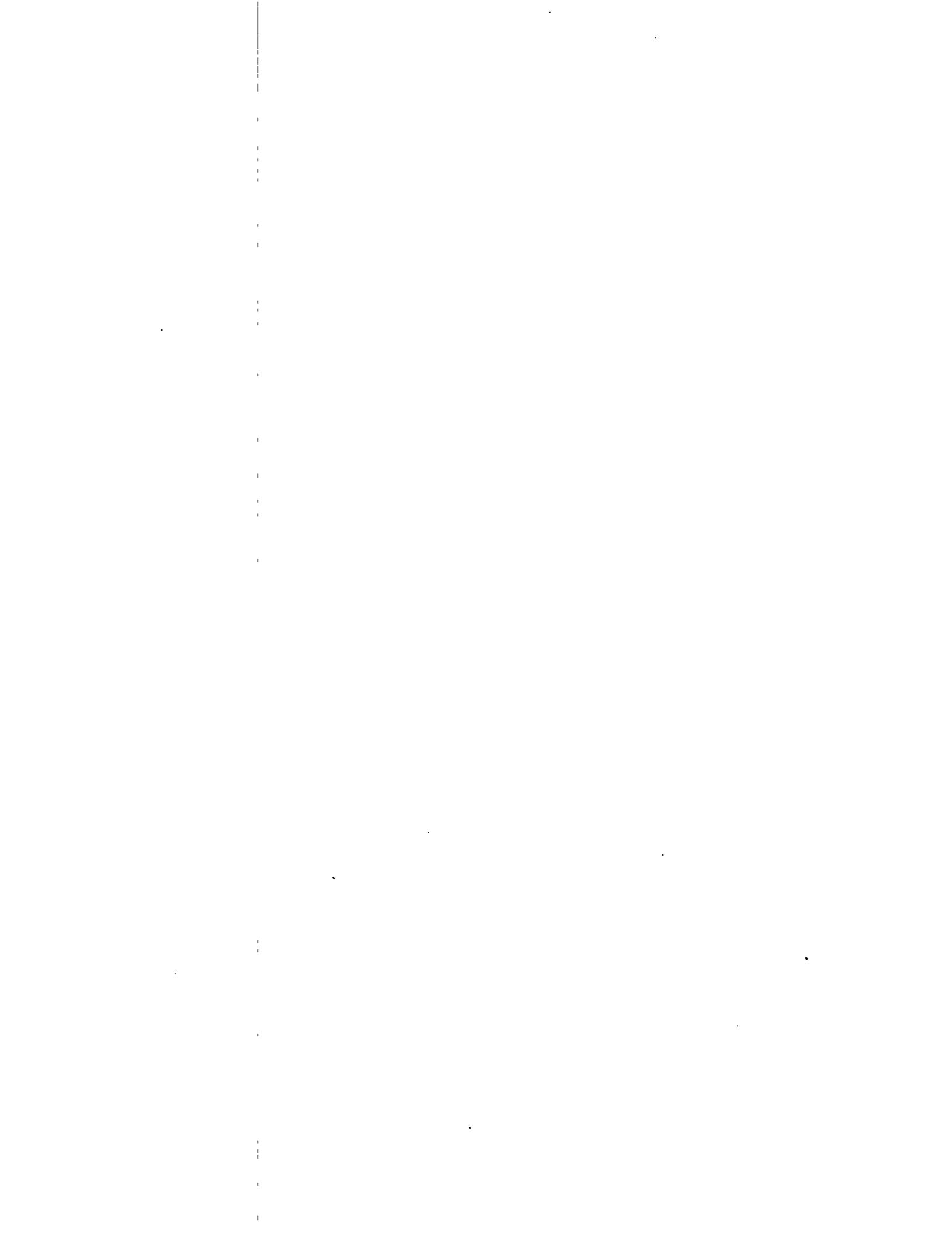
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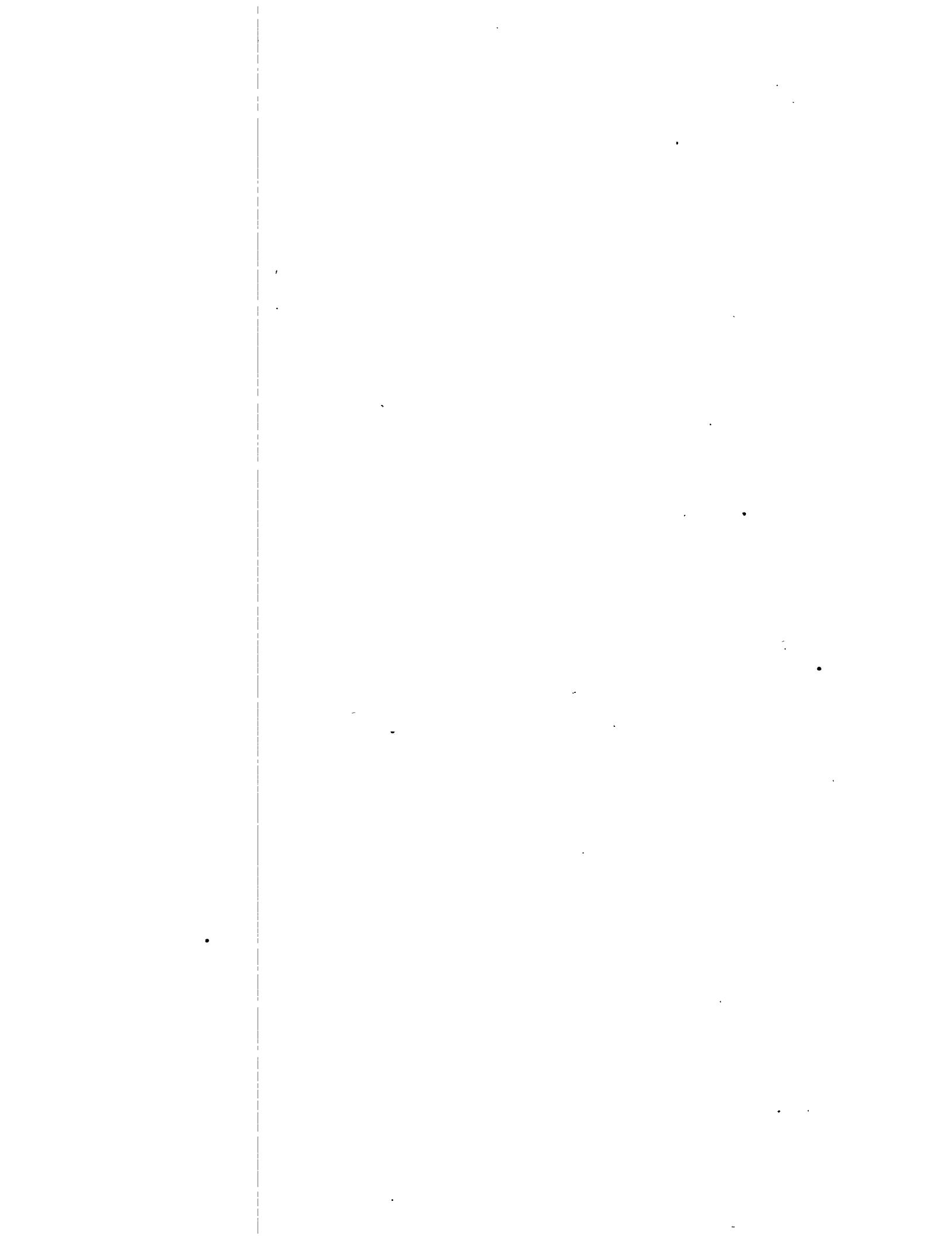
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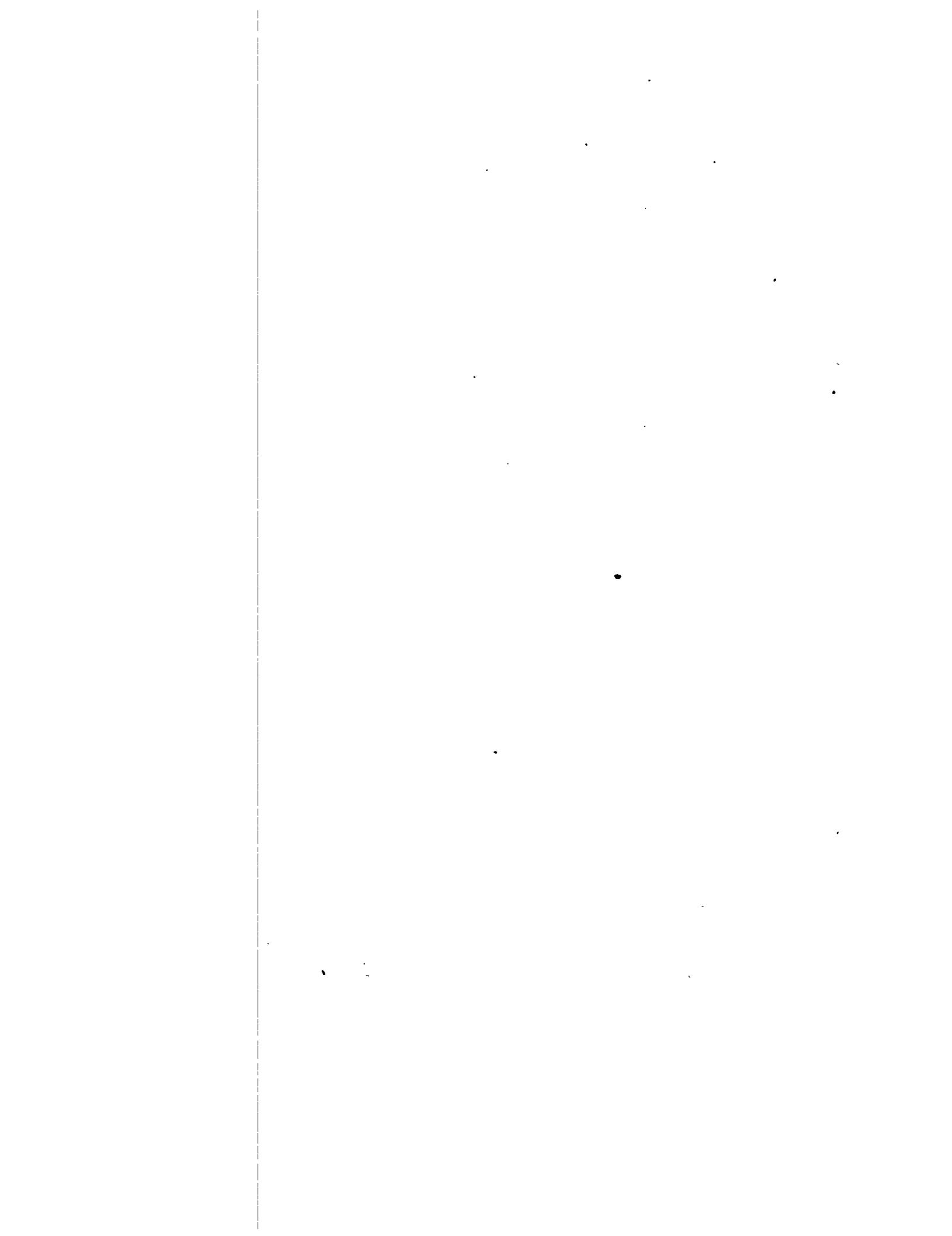






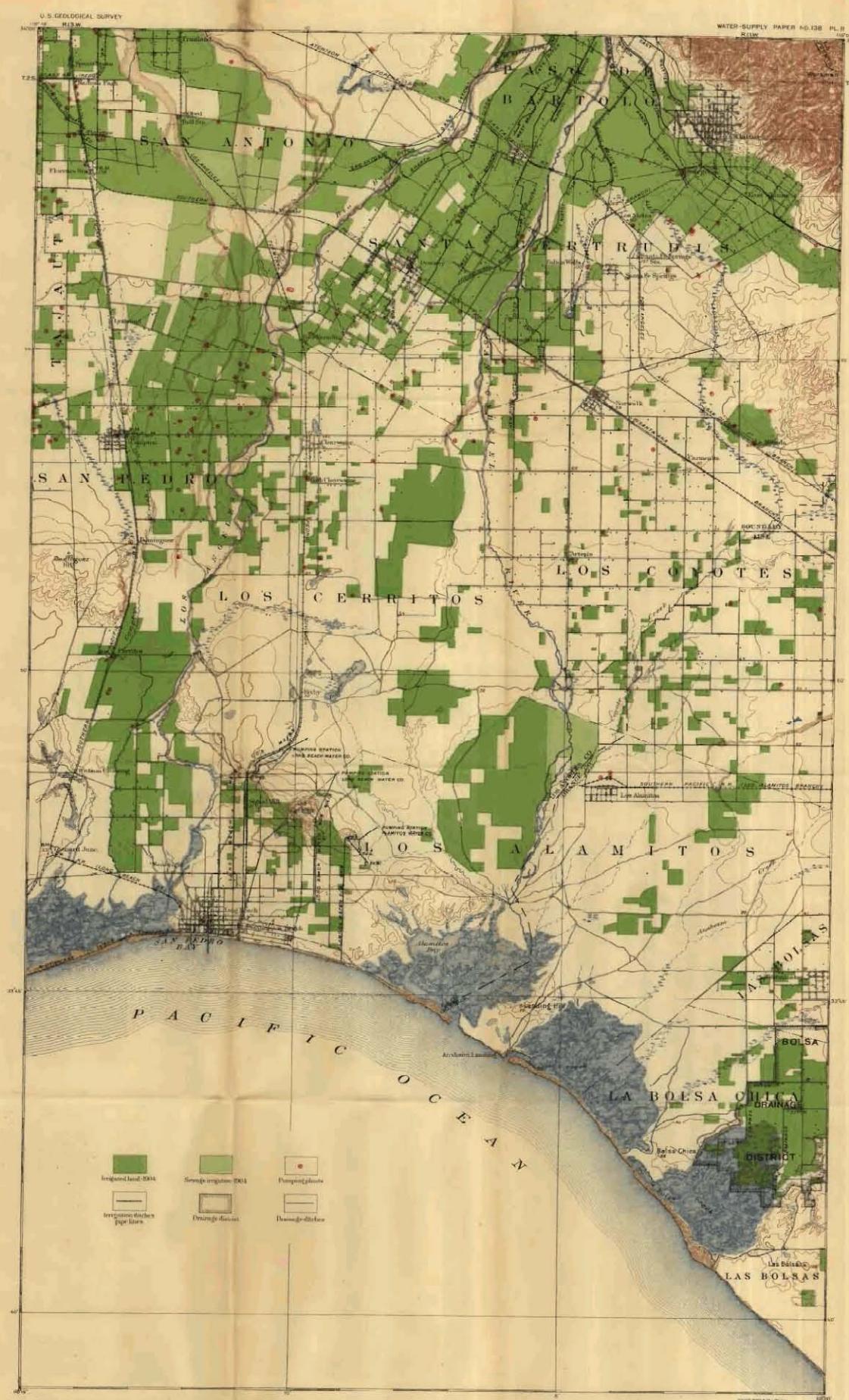












MAP SHOWING IRRIGATED LANDS, CANALS, DRAINAGE DISTRICTS,  
AND PUMPING PLANTS IN THE DOWNEY AND LAS BOLSAS QUADRANGLES.

DATA COMPILED UNDER THE DIRECTION OF W. C. MEDDELL, 1904.

Henry Bennett, Chief Topographer  
Riverside Geographer in charge  
Transcription by A. P. Davis and  
U. S. Geological Survey  
Topography by A. P. Davis  
and G. E. Hart  
Surveyed in 1899-1904.

Irrigated lands mapped  
by W. C. Harris  
E. L. Hanchett  
W. W. White

Scale 1:62,500  
1 mile  
1 kilometer  
Contour interval 25 feet.  
Dotted or broken line denoted

